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Description of Proposed Program

Program Background

Old Dominion University (ODU) in Norfolk, Virginia seeks approval for Bachelor of Science (BS) degree in Data Science. The proposed program will reside in ODU's new School of Data Science. The target date of the proposed program's initiation is Fall 2023.

The purpose of the BS in Data Science program is to provide students foundational knowledge in the core competency areas of data science. The proposed program will provide skills in computer science, mathematics and statistics, and data analytics. Students will learn to use data for identifying trends and patterns, solving problems, communicating results, and recommending solutions. Additionally, it will provide opportunities for students to practice these skills across application areas from different domains. The program will provide project-based learning and students will discover how to use data to solve real-world problems. Graduates will be knowledgeable and skilled at developing statistical models to detect trends and lead teams in organizing, managing, and modeling data. The program will prepare graduates to work in public or private settings that require data-driven solutions to gain insights, make decisions, and communicate solutions.

The proposed BS in Data Science will offer three concentrations initially. The concentrations will prepare students to focus on different aspects of data science and gain deeper knowledge in these sub-areas. Students who choose the artificial intelligence and machine learning concentration will take courses that address topics such as object-oriented programming, algorithms and data structures, and information retrieval. Students will learn computational data analysis and natural language processing. Graduates who choose this concentration will be prepared to enter rapidly emerging science and statistical fields. Students who choose the visualization concentration will take courses in data visualization, data structures**,** and computer graphics. Students will gain skills for data modeling, simulation, and rendering results. Graduates of this concentration will be prepared to select and apply appropriate techniques for data visualization to support analyses from different domains. Finally, students who choose the geospatial analysis concentration will take courses in geographic information systems, spatial analysis, and remote sensing. The concentration provides the skills for spatial predictive modeling, geostatistics, and object detection. Graduates from this concentration will be prepared to uncover spatial patterns to enhance cartography analytics and communications.

The increased amount of available data has escalated the demand for data science professionals. As data science continues to grow, more and more colleges and universities are working to equip undergraduate and graduate students with the skills that will be required to perform data science-related tasks in a variety of industries and positions. "Higher education needs to be nimble and responsive, and its bachelor's, graduate, certificate, and executive-level programs have to be responsive to workforce needs". [1]

Organizations seek to take advantage of the vast amount of data they collect day in and day out.

[1] Burning Glass Technologies. ·'The Quant Crunch. How The Demand for Data Science Skills Is Disrupting the Job Market." https://www.burning-glass.com/wp-content/uploads/The Quant Crunch.pdf pg. 3

"They want to use that data to make more insightful, forward-looking decisions: This requires a new generation of advanced analytics, high-level diagnostic and predictive, and the employees who have the skill sets to use them."[2] Virginia houses the third-largest tech industry workforce in the nation, and the need for qualified data science professionals is considerable. "The Commonwealth currently has one of the highest concentrations of data scientist and mathematical science employment, according to 2020 research".[3]

The proposed BS degree program in Data Science will help provide the next generation of data scientists. Graduates of this program will have the skills to lead data-driven activities and manage data science resources supporting a range of applications. This program will meet workforce needs by providing students with the skills necessary for the data focused roles as scientists and analysts. Students educated in computational and statistical data science techniques have the potential to become future leaders in data-centric industry, government, and academia careers. ODU is fully committed to offering the proposed degree program to ensure professionals are prepared and trained to meet industry needs.

Institutional Mission

The mission statement of Old Dominion University is: "Old Dominion University, located in the City of Norfolk in the metropolitan Hampton Roads region of coastal Virginia, is a dynamic public research institution that serves its students and enriches the Commonwealth of Virginia, the nation, and the world through rigorous academic programs, strategic partnerships, and active civic engagement."

The proposed BS in Data Science supports ODU's mission by providing a rigorous academic program in data science that will supply qualified graduates to regional and national industry partners to enrich Virginia's workforce and address the growing need for data science professionals. As part of ODU's strategic plan (2014-2019), the university committed investments in data science to support ODU's reputation for research excellence by putting forward a data science initiative.[4] Additionally, the Colleges of Sciences, Engineering, and Business have all built capability in data analytics and data-intensive research.

Admission Criteria

Students applying to the BS program in Data Science should meet the minimum university admission requirements for Undergraduate Admission. Because the curriculum requires a number of computer science and mathematics courses, it is highly recommended that prospective students feel confident in their high school math and science skills. Required criteria for freshman applicants include:

- A completed online application and associated application fee
- Official High School Transcript (or GED Transcript)
- SAT/ACT Scores, Self-reported Scores, or Test Optional

[2] Jachimski, S. & Delurey, M. (2019). Predictive Analytics Handbook for National Defense, Booz Allen Hamilton
[3] https://issuu.com/vedpvirginia/docs/vedp_q421_issuu/62
[4] https://www.odu.edu/about/planning/strategic-plan-14-19

- Optional Items: Activity Resume, Letter(s) of Recommendation and/or Personal Statement

Applications will be evaluated for both fall and spring admission. Students must have a 3.3 or higher GPA to get the minimal merit scholarship. For students who chose to test, the average SAT is 1000-1210 (reading and math only) and average ACT is 19-26.

Curriculum

The proposed BS in Data Science will require 120 credit hours to complete the degree. Along with the core coursework, the curriculum includes three concentrations: artificial intelligence and machine learning, visualization, and geographic information systems. It also includes the general education requirements and undesignated electives. The program requires a capstone course for graduation.

The focus of the curriculum is on the foundational data science areas of statistics, computer science, and information technology. Students will learn programming to develop statistical models and how to use data for identifying trends and patterns, communicating results, and recommending optimal solutions. Through the core curriculum, students will gain knowledge about using data in various ways to solve problems.

Students will choose a concentration area to gain knowledge, skills, and abilities that are more specific to an interest area. Coursework for the artificial intelligence and machine learning concentration focuses on topics such as object-oriented programming, algorithms and data structures, and information retrieval. Coursework for the visualization concentration focuses on data visualization, data structures, computer graphics and visual design. Coursework for the geospatial analysis concentration focuses on geographic information systems, spatial analysis, and remote sensing.

Students will be exposed to various application domains through problem-based learning that uses data to solve real-world problems. Students will have opportunities to participate in faculty lead research and industry internships. The capstone project will provide an opportunity for students to synthesize knowledge from their coursework and apply it to solve real-world data analytics problems.

New courses are denoted with an asterisk.

Program Requirements

General Education Requirements (32 credit hours)

Written Communication (6 cr)
Oral Communication (3 cr)
Mathematics (MATH 162M required) (3 cr)
Language and Culture (Anticipated met through High School credits, otherwise 6 credits)
Information Literacy and Research (0 cr) (Met through Foundations of Data Science Class)

Human Creativity (3 cr)
Interpreting the Past (3 cr)
Literature (3 cr)
Philosophy and Ethics (0 cr) (Met through Ethics and Data Class)
Impact of Technology (0 cr) (Met through Elements of Data Class)
The Nature of Science (8 cr)
Human Behavior (3 cr)

Prerequisite Core Courses (14 credit hours)

MATH 163. Precalculus II (3 cr)
STAT 130M. Elementary Statistics (3 cr)
CS 150. Problem Solving and Programming I (4 cr)
CS 250. Problem Solving and Programming II (4 cr)

Core Courses (27 credit hours)

*DASC/CS 15X Computing Languages for Data Scientist (3 cr)
BDA 200T Elements of Data (3 cr)
*DASC 300G. Foundations of Data Science (3 cr)
*DASC 3XX Ethics and Data (3 cr)
STAT 310. Introduction to Data Analysis (3 cr)
IT 360T. Principles of Information Technology (3 cr)
IT 450. Database Concepts (3 cr)
*DASC 434 Data Science Research Methods (3 cr)
*DASC 435W Capstone in Data Science (3 cr)

Elective Courses (18-20 credit hours)

Students can take the electives from any discipline at ODU and/or complete courses for other concentrations, as needed, to complete the required 120 credit hours.

Concentration Areas (27-29 credit hours):

Students pick one concentration area. Note that the typical credit total per concentration is 27, however, the visualization concentration requires 29. Each concentration area consists of math prerequisites, course prerequisites, and concentration courses.

<u>Artificial Intelligence & Machine Learning Concentration (27 credit hours)</u>
The purpose of this concentration is to provide students skills in computational data analysis, object-oriented programming, and natural language processing. Students will take courses to learn topics such as machine learning and artificial intelligence.

<u>Math Prerequisites</u>
MATH 211. Calculus I (4 cr)
MATH 212. Calculus II (4 cr)

Course Prerequisites

CS 252. Introduction to Unix for Programmers (1 cr)
CS 361. Data Structures and Algorithms (3 cr)

Concentration Courses

Pick One:

BDA 411 Introduction to Machine Learning (3 cr)
CS 422/522. Introduction to Machine Learning (3 cr)

Pick One:

CS 480/580. Introduction to Artificial Intelligence (3 cr)
MSIM 480/580. Introduction to Artificial Intelligence (3 cr)

Pick Three: *

CS 330. Object-Oriented Programming and Design (3 cr)
CS 432/532. Web Science (3 cr)
ECE 407/507. Introduction to Game Development (3 cr)
CYSE 420 Applied Machine Learning in Cybersecurity (3 cr)
ECE 450/550. Introduction to Machine Learning for Data Analytics Engineering. (3 cr)
DASC 450 Machine Learning and Society (3 cr)

Visualization Concentration (29 credit hours)

The purpose of this concentration is to give student skills in data modeling, simulation, and results rendering. Students who choose the visualization concentration will take courses in data visualization, data structures, and computer graphics.

Math Prerequisites

MATH 212. Calculus II (4 cr)

Course Prerequisites

BNAL 206. Business Analytics I (3 cr)
BNAL 306. Business Analytics II (3 cr)
CS 252. Introduction to Unix for Programmers (1 cr)
GAME 201T Introduction to Game Studies (3 cr)

Concentration Courses

BNAL 403/503. Data Visualization and Exploration (3 cr)
CS 361. Data Structures and Algorithms (3 cr)
ECE 406/506. Computer Graphics and Visualization (3 cr)
GAME 340. Visual Design and Digital Graphics for Games (3 cr)

Pick Two: *

ARTH 320W. History of Graphic Design (3 cr)
CRJS 344 Social Science and Crime Mapping (3 cr)
ECE 475 Transportation Data Analytics (3 cr)
ECE 407 Introduction to Game Development (3 cr)
GAME 440. Advanced Visual Design and Digital Graphics for Games (3 cr)
IT 325. Web Site and Web Page Design (3 cr)

Geographic Information Systems Concentration (27 Credit Hours)
The purpose of this concentration is to provide the skills for spatial predictive modeling, geostatistics, and space-time pattern mining and object detection. Students will take courses in courses in geographic information systems, spatial analysis, and remote sensing.

General Prerequisites

GEOG 102T. Digital Earth Geospatial Technology and Society (3 cr)

Course Prerequisites

GEOG 402/502. Geographic Information Systems (3 cr)
GEOG 404/504. Digital Techniques for Remote Sensing (3 cr)

Concentration Courses

GEOG 419/519. Spatial Analysis of Coastal Environments (3 cr)
GEOG 425/525. Internet Geographic Information Systems (3 cr)
GEOG 432/532. Advanced GIS (3 cr)
GEOG 462/562. Advanced Spatial Analysis (3 cr)
GEOG 463/563. GIS Programming (3 credit)
GEOG 473/573. GIS for Emergency Management (3 cr)

*Courses from the controlled electives list have different prerequisites. Students should consult the course description and address any questions to their advisor.

Total Credits - 120

SCHEV Baccalaureate Requirements

The BS in Data Science, with any of the concentrations, will require 120 credit hours. The program is achievable in a traditional, four-year graduation plan.

Appendix A provides a sample plan of study by year and semester for full-time students. Appendix B provides course descriptions for new and existing program courses.

Faculty Resources

The proposed BS in Data Science degree will be administrated by the newly formed School of Data Science. The faculty teaching the courses are from the Departments of Computer Science and the Department of Mathematics and Statistics in the College of Sciences, as well as the Department of Philosophy and Religious Studies and the Department of Political Science and Geography in the College of Arts and Letters. Additionally, courses will also be taught by faculty from the Electrical and Computer Engineering from the College of Engineering.

The nature of the program is interdisciplinary involving faculty from math, statistics, physics, computer science, engineering and information technology. The faculty chosen to teach in this program are currently actively teaching and performing research in this area. ODU currently has 51 faculty teaching and conducting research in data science or related areas, including business, computer science, engineering, geography, mathematics and statistics, and ocean and earth sciences. This includes 22 new data science hires during the last 5 years.[5] Appendix C provides some faculty abbreviated CVs.

Student Learning Assessment

Students who complete the proposed BS in Data Science degree will possess the appropriate knowledge, skills, and abilities needed to work in a wide variety of data science positions. Student learning will be assessed throughout the proposed program through a variety of formative and summative measures. Assessment measures include, but are not limited to assigned papers, quizzes, tests, and projects assigned during classroom instruction. Students will be evaluated on their ability to synthesize knowledge from their coursework and apply it to solve real-world data analytics programs. Additionally, students will be required to complete a capstone project. This project will require students work in teams to solve a data science/analytics problem in a real-world business, industry, or government setting using established techniques and methods within the field.

Learning Outcomes

Student learning outcomes cover many of the technical competencies that are required for the area data science. Specifically, graduates will be able to:

- Use statistics to represent data and test hypotheses
- Apply descriptive and predictive statistics to perform data analysis
- Use modern programming languages to develop data science tools
- Employ program design for computer-based algorithm development
- Identify information technology to support organizational decision making
- Demonstrate knowledge of databases and data management
- Apply data analytics to inform policy, product development, and social issues
- Demonstrate expertise in application of data science concepts to real life problem sets

Each concentration area provides additional learning experiences to support and enhance learning outcomes. The concentration areas provide more detailed employment skills as identified in the next section. The curriculum map shown in the table below provides the core coursework that supports the learning outcome and the formative (process) and summative (outcome) evaluation activities.

Curriculum map for BS in Data Science

Learning Outcomes	Courses	Assessment Methods

[5] Old Dominion University: Educating Data Scientists for the Digital Future, 2021 Langley Research Center Data Science Expo, July 15, 2021. Lesley Greene, PhD, Associate Dean of Graduate Studies, College of Sciences.

Use statistics to represent data and test hypotheses	STAT 130M**.** Elementary Statistics DASC 3XX. Ethics and Data	Formative: Chapter tests, homework assignments, use of statistical software Summative: Final Exam
Apply descriptive and predictive statistics to perform data analysis	STAT 310**.** Introductory Data Analysis DASC 434 Data Science Research Methods	Formative: Chapter tests, weekly data analysis homework using Microsoft EXCEL, written interpretation of results Summative: Final Exam
Use modern programming languages to develop data science tools	CS 150**.** Problem Solving and Programming I DASC/CS 15X. Languages for Data Science	Formative: Quizzes, weekly laboratory, programming assignments and exercises Summative: Midterm Exam, Laboratory Midterm Exam, Final Exam, Laboratory Final Exam
Employ program design for computer-based algorithm development	CS 250**.** Problem Solving and Programming II**.** DASC/CS 15X. Languages for Data Science	Formative: Laboratory work including ungraded activities that introduce techniques, Assignments that include graded activities that practice programming Summative: Midterm Exam, Final Exam, Final Project that applies the techniques of design, coding, testing, and debugging
Identify information technology to support organizational decision making	IT 360T. Principles of Information Technology. BDA 200T Elements of Data	Formative: Class exercises, discussions, presentations, homework, ethics assignment. Summative: Three Exams
Demonstrate knowledge of databases and data management	IT 450**.** Database Concepts**.** BDA 200T Elements of Data	Formative: In class discussions, homework, quizzes, exams Summative: Team project, Final Exam
Apply data analytics to inform policy, product development, and social issues	DASC 300. Foundations of Data Science. DASC 436W. Data Science Capstone Project.	Formative: Class discussions; quizzes, homework assignments, small group work Summative: Midterm Exam, Final Exam
Demonstrate expertise in application of data science concepts to real life problem sets	DASC 434 Data Science Research Methods DASC 436W. Data Science Capstone Project.	Summative: Students work individually or in groups to plan, design, and carry out a research project assessed with program level rubric

The student learning outcomes for the core program and the concentration areas were developed by reviewing the SCHEV requirements for the program and the desired skill sets based on job

listings. Program faculty will maintain awareness of the learning outcomes and their relevance through professional development activities such as conference attendance, workshop training, and keeping abreast of the professional literature.

Employment Skills

The ODU BS in Data Science degree will provide skills that graduates need to pursue careers as data-focused professionals, such as data scientists and data analysts. The proposed education program ensures they are well-qualified to transition to the workforce by meeting the requirements identified by both the Department of Defense and industry.[6] Additionally, the concentration areas ensure graduates of the program will have the skills, abilities, and workplace competencies needed for employment in a variety of domains.

All graduates of the proposed program will be able to:

- Develop and implement analytics applications to transform raw data into meaningful information using data-oriented programming languages and visualization software.
- Apply data mining, data modeling, natural language processing, and machine learning to extract and analyze information from large structured and unstructured datasets.
- Analyze data to identify trends or relationships among variables and to inform operational decisions or activities.
- Determine appropriate methods for data analysis and apply mathematical principles or statistical approaches to solve problems in scientific or applied fields.
- Prepare graphics or other representations of information that aids in visualizing and interpreting data findings
- Prepare analytical reports and present results to others.[7]

Additionally, graduates in each concentration will demonstrate the additional workplace competencies.

<u>Artificial Intelligence & Machine Learning Concentration</u>
The Machine Learning & Artificial Intelligence concentration prepares students to enter rapidly emerging fields related to big data applications. Graduates in this concentration will be able to:

- Produce software code using object-oriented programming
- Apply different learning techniques for machine learning algorithms
- Understand the concepts and challenges of artificial intelligence

<u>Visualization Concentration</u>
The Visualization concentration prepares students to apply modeling and simulation methods to a variety of data science visualization scenarios. Graduates in this concentration will be able to:

- Model a variety of systems from different domains
- Design appropriate software architectures for visualization in modeling and simulation
- Employ data visualization to enhance organizational decision making

[6] https://datascience.ucsd.edu/wp-content/uploads/2019/04/DataScience_Brochure_11APR2019_v2.pdf
[7] https://www.onetonline.org/link/summary/15-2051.00

Geographic Information Systems Concentration

The Geospatial Information Systems (GIS) concentration enables students to develop advanced skills and expertise in geospatial science and technology. Graduates in this concentration will be able to:

- Use GIS as a tool for manipulating spatial information
- Design spatial database structures for analytical operations
- Apply methods, standards, and policies for use of GIS on the Internet

Relation to Existing Old Dominion University Degree Programs

Current academic programs at Old Dominion University in data science and related fields are spread across numerous departments, several colleges, and the recently created School of Cybersecurity. This causes some fields of study to be difficult to locate under their present titles. This proposal advocates for the creation of an undergraduate bachelor's degree in data science that draws from applicable coursework across university programs but provides a single home for undergraduate data science students. It provides a consistent curriculum for data science students.

The Department of Information Technology & Decision Sciences in the Strome College of Business offers the Business Analytics and Intelligence major that develop skills in the use of the computer as a decision-making tool. The BS in Data Science degree leverages some of this coursework in the Visualization concentration. The proposed program does not overlap with the BSBA in Information Technology degree, also offered by this department. The Batten College of Engineering and Technology offers a Data Analytics Engineering concentration for the BS ECE and BS COME degrees. Some of these courses are optional courses in the Visualization concentration. Finally, the Department of Computer Science within the College of Sciences allows students to choose electives from a range of data science topics; these courses will be used to form the Artificial Intelligence & Machine Learning concentration. The Department of Mathematics and Statistics offers a BS Mathematics with a Big Data Analytics major. This is a math-intensive major and there is no coursework from this curriculum used in the proposed program.

The proposed BS in Data Science program will utilize the existing data science course resources currently available at ODU. However, the curriculum was purposely designed to ensure that students are prepared with the correct course prerequisites to take the available data science courses offered across departments as they progress through the program. The program provides an educational pathway starting at the freshman level for students to obtain a data science degree by identifying the appropriate math, prerequisite, core and concentration course sequences. Without this program, many students find that they cannot access data science courses, as most of these courses are at the upper undergraduate level and they are not prepared with the prerequisite courses.

The proposed BS in Data Science program is not an expansion of an existing program, and will not compromise any existing degree programs at Old Dominion University. No degree

programs will close as a result of the initiation and operation of the proposed degree program.

Justification of the Proposed Program

Response to Current Needs (Specific Demand)

Data Science is a rapidly growing field of study. The magnitude of data that are being generated and stored every day is overwhelming. Data science makes it possible to uncover important information that would otherwise remain hidden.[8] With the growth of data mining techniques and the need for more data-driven decisions, more data science and analytical skills are needed in the workforce. Industry, government, health care and other organizations need graduates trained with skills to manipulate data, analyze information and determine solutions to complex problems. Nationally, in 2020 there were 2.7 million open jobs in data analysis, data science and related careers, which represents a 39% growth in employer demand for both data scientists and data engineers. Additionally, the recruitment platform Zippier ranked Virginia in 2022 as one of the top 15 locations where companies were actively looking for data scientists.[9]

The proposed BS in Data Science responds to current needs in both Virginia and the nation as a whole and prepares students to work in a variety of industries. The identified specific demand includes 1) private sector demand for trained data scientist and data analysts to address the rapidly growing sources of data; 2) Department of Defense demand to exploit data collection and analysis for predictive analytics; 3) demand specific to the Hampton Roads area, which has one of the highest needs for qualified data science professionals[10]; and 4) addressing the gap for highly trained analysts by providing a data science educated workforce.

Private Sector

Data science touches nearly every industry through the application of advanced data analytics. Among the new job opportunities for data scientists and data analysts, IBM predicts 59% of jobs will be in finance, information technology (IT), insurance and professional services careers, with 61% of data scientists and advanced analysis positions available to bachelor's degree holders.[11] Generating and maintaining a skilled talent base represents one of the key competitive advantages that enables long term success in industries that leverage applications of data science. The data science workforce consists of both subject matter experts who advance fundamental data sciences innovation and applications, as well as workers who leverage data sciences as a part of their job functions.[12]

Data science represents an increasingly important source of competitive advantage in the private sector. Businesses recognize that their internal databases provide exploitable information about their customers, markets, supply chains, and more. Likewise, increasingly robust data sources have created opportunities for firms to compete in or transform traditional markets by offering

[8] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[9] https://www.zippia.com/data-scientist-jobs/best-states/
[10] https://issuu.com/vedpvirginia/docs/vedp_q421_issuu/62
[11] IBID.
[12] TEConomy Partners, LLC., Situational Assessment Scan for Advancing Data Sciences in Hampton Roads Initial Quantitative Analysis of Demand Drivers April 2022

new products and services.[13] The ability to merge private, internally held data with external data sources has placed data science and data scientists on the front line of market competition across an ever-expanding frontier of domains. Three specific areas in which data science applications have developed are (1) improving the reliability and quality of products and services, (2) increasing organizational efficiency and agility to better respond to changes in the marketplace, and (3) anticipating new threats and opportunities based on competitive trends and risk management.[14] Predictive analytics, targeted customer engagements, and autonomous, interconnected systems can be used to improve products and processes; companies such as Google and Microsoft have used prediction markets to estimate the demand for new products and services and the completion time and release of complex software development projects. In these cases, data scientists work with data generated by market participants responding to specific statements about the future.[15]

Department of Defense

Department of Defense (DoD) organizations are utilizing high level diagnostic and predictive analytics to take full advantage of the vast amount of data they collect. They are using data to make more insightful decisions about readiness, logistics, manpower, and intelligence. Data science allows them to drill into cause and effect and determine the mathematical probability of future occurrences, rather than just looking back at data to make projections.[16] In 2013, the Defense Intelligence Agency (DIA) Directorate for Analysis initiated a program seeking to modernize defense intelligence analysis, seeking to address the big data problem from the military intelligence perspective and focusing on the inadequacy of existing personnel, tradecraft, and methodologies to manage big data analysis. Technology and the ability to gather and manipulate vast quantities of data have fundamentally altered the way that intelligence organizations collect, process, analyze, and disseminate information.[17] Data science professionals' impact defense business, operational, and mission outcomes with insights gained from analyzing large data sets. Careers in the DoD include data analysts, who extract knowledge, communicate insights, and inform decision making using visualizations; data scientists, who create methods, processes, and mathematical solutions to extract knowledge and answer questions; and data engineers, who discover ways to design, integrate, and acquire data systems, architectures, and data models.[18]

Hampton Roads Area

There is a high demand for workers with data science expertise in the Hampton Roads area of Virginia from national labs, finance, industry, health care providers, military centers, and maritime related industry. NASA Langley Research Center and the National Institute of

[13] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[14] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[15] IBID.
[16] Jachimski, S. & Delurey, M. (2019). Predictive Analytics Handbook for National Defense, Booz Allen Hamilton
[17] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[18] https://datascience.ucsd.edu/wp-content/uploads/2019/04/DataScience_Brochure_11APR2019_v2.pdf

Aeronautics are in Hampton, Virginia, and Jefferson Laboratory is located nearby in Newport News. Norfolk, where Old Dominion University is located, is home to major command centers from every branch of the military, including the largest naval base in the world, Norfolk Naval Station. The Norfolk/Virginia Beach area includes health care providers Sentara Medical Group and Eastern Virginia Medical School (EVMS). The Port of Virginia—which includes Newport News Marine Terminal, Norfolk International Terminals, Portsmouth Marine Terminal and Virginia International Gateway in Portsmouth, Virginia— is the only U.S. East Coast port with Congressional authorization of 55-ft depth channels and currently stands as the third largest container port on the East Coast. Moreover, Amazon, with its existing workforce of more than 10,000 full-time employees in the state of Virginia, is building two operations facilities in Hampton Roads, creating 1,500 additional jobs. Furthermore, Norfolk and Virginia Beach host several financial and insurance data centers.[19]

Data Science jobs grew by 10% in Hampton Roads from 2015-2021.[20] Key areas of high growth were found in cybersecurity, marine engineering, and logistics occupations. Hiring consistently outpacing separations, indicating a stable regional demand for data sciences talent over time and consistently growing workforce.[21] In Hampton Roads, federal workforce, defense, and maritime industries were by far the leading employers. However, demand was not limited to just one industry sector, but cross-cutting industry demand with over 15,552 unique postings for jobs with Data Science-related skill sets in the Hampton Roads region over the 5-year period.[22]

Providing a Data Science Educated Workforce

The consulting firm, PricewaterhouseCoopers published a report that makes a case for investing in America's data science talent.[23] A similar report published by the McKinsey Global Institute predicts that data-driven technologies will bring an additional $300 billion of value to the U.S. healthcare sector alone, and more "data-savvy managers" will be needed to capitalize on the potential of data.[24] This report goes on to warn that in spite of a strong push in the U.S. at the federal, state, and local levels for more STEM graduates, more programs are needed to educate the needed data science workforce.

To help meet Virginia's growing tech talent needs, the Commonwealth has committed $1.1 billion toward more than doubling the number of bachelor's and master's graduates in computer science, computer software engineering, and computer engineering in the next two decades. As data science continues to grow, more of Virginia's colleges and universities are needed to equip undergraduate and graduate students with the skills that will be required to perform data science-

[19] Xu, Y. et al. (2021). Collaborative Research: HDR DSC: Southeastern Virginia Data Science Education Consortium, Proposal to the national Science Foundation, NSF 21-523, Harnessing the Data Revolution.
[20] TEConomy Partners, LLC. Situational Assessment Scan for Advancing Data Sciences in Hampton Roads Initial Quantitative Analysis of Demand Drivers April 2022
[21] IBID.
[22] TEConomy analysis of job postings data from Emsi (Emsi Release 2022.1)
[23] Business-Higher Education Forum. (2017). Investing in America's data science and analytics talent. The case for action. https://www.pwc.com/us/en/publications/assets/investing-in-america-s-dsa-talent-bhef-and-
[24] McKinsey Global Institute (2011). Big data: The next frontier for innovation, competition, and productivity, https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/0ur%20lnsights/Big%20data%20The%20next%20frontier%20for%20innovation/MG1 big data exec summary.ashx, p. 10.

related tasks in a variety of industries and positions.[25]

Graduates of the proposed BS in Data Science program will be qualified to work in a variety of industries including private and public businesses, health organizations, and government agencies. The knowledge and skills learned through the curriculum will be applicable to meet organizations' needs for professionals who can develop statistical models, perform analytics on complex data and use data science and analytics to solve problems and create new strategies for success. The BS in Data Science provides students broad exposure to concepts, methods, and tools that data science professionals should be familiar with prior to entering the workforce: computer science, statistics, and data visualization.[26] ODU's program is "proactively responding to the rising demand for analytics skills with programs that prepare students for the analytics-related roles of today and tomorrow."[27]

Employment Demand

Graduates of the proposed BS in Data Science degree program will be qualified to work as data-focused professionals, such as data scientists and data analysts, along with a wide variety of related fields. Graduates will be prepared to work in a variety of domains, such as finance, health care, logistics, defense, among others. O*Net Online, the Department of Labor website that allows users access to occupational information, describes the work of Data Scientists as "develop and implement a set of techniques or analytics applications to transform raw data into meaningful information using data-oriented programming languages and visualization software."[28] They apply tools including data mining, data modeling, natural language processing, and machine learning to extract and analyze information from large structured and unstructured datasets, which they then visualize, interpret, and report data findings.

The Bureau of Labor Statistics (BLS) and the Virginia Employment Commission (VEC) do not have data or a job category for data scientists or data analysts. The closest occupations on which there are some data are operations research analysts. The BLS indicates that operations research analysts "use advanced mathematical and analytical methods to help organizations solve problems and make better decisions." Moreover, operations research analysts "use statistical analysis, simulations, predictive modeling, or other methods to analyze information and develop practical solutions to business problems ... and, advise managers and other decision makers on the effects of various courses of action to take in order to address a problem."[29] Graduates of the BS in Data Science will possess the same skill set and be able to use mathematical and analytical methods to solve problems and make decisions.

The BLS indicates that between from 2020 to 2030, employment of operations research analysts is "projected to grow 25 percent, much faster than the average for all occupations." The BLS

[25] https://issuu.com/vedpvirginia/docs/vedp_q421_issuu/62
[26] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[27] Burning Glass Technologies. ·'The Quant Crunch. How The Demand for Data Science Skills Is Disrupting the Job Market." https://www.burning-glass.com/wp-content/uploads/The Quant Crunch.pdf pg. 3
[28] National Center for O*NET Development. 15-2051.00 - Data Scientists. *O*NET Online*. Retrieved June 30, 2022, from https://www.onetonline.org/link/summary/15-2051.00
[29] https://www.bls.gov/ooh/math/operations-research-analysts.htm

notes that " About 10,200 openings for operations research analysts are projected each year, on average, over the decade. As technology advances and companies seek efficiency and cost savings, demand for operations research analysis should continue to grow. In addition, increasing demand should occur for these workers in the field of analytics to improve business planning and decision making.[30] Operations research analysts will continue to be needed to provide support for the Armed Forces and to assist in developing and implementing policies and programs in other areas of government.

Graduates of the proposed program will be prepared to serve businesses in Virginia. The Virginia Employment Commission, Labor Market Index shows strong demand in Virginia for operations research analysts and mathematicians and statisticians. Virginia is one of the states with the highest concentration of jobs and location quotients in Data Scientists and Mathematical Science Occupations, which is projected to grow 22 percent from 2020 to 2030, much faster than the average for all occupations. About 7,200 openings for computer and information research scientists are projected each year, over the decade.[31] At this point in time there are over 300 job openings in the state of Virginia (July 2022).

Labor Market Information: Bureau of Labor Statistics, 2018-2028 (10-Yr)

Occupation Title	Base Year Employment	Projected Employment	Total % Change and #'s	Typical Entry Level Education
Operations research analysts	104,100	129,700	25%, 25,600	Bachelor's Degree

Labor Market Information: Virginia Employment Commission, 2018-28 (10-Yr)

Occupation Title	Base Year Employment	Projected Employment	Total % change and #'s	Annual Change	Education
Operations research analysts	9,324	12,036	29%, 2,712	271	Bachelor's Degree

Appendix D provides employment announcements.

Duplication

Three public four-year institutions in Virginia offer a comparable degree program: College of William and Mary, George Mason University and Virginia Tech. Each offers BS degrees in Data Science or a related field.

College of William and Mary

The College of Arts and Sciences offers a BS Degree in Data Science.[32] The focus of the core curriculum is to provide students with a solid foundation in data science through learning the

[30] Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Operations Research Analysts, at https://www.bls.gov/ooh/math/operations-research-analysts.htm (visited June 21, 2022).
[31] Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, May 2020 State Occupational Employment and Wage Estimates Virginia on the Internet at https://www.bls.gov/oes/current /oes_va.htm (visited 9/9/21).
[32] https://www.wm.edu/as/data-science/ds_degrees/data_science_bs/index.php

basics of programing, modeling, machine learning, data visualization, database structures, and ethics in data science.

Similarities
The BS in Data Science requires a minimum of 40 credits of identified data science coursework. The program consists of 21 credits of core courses including a capstone, and nine credits of mathematics. The remaining credits are fulfilled by selecting one of the required tracks

Differences
The concentrations, data applications, algorithms, or spatial data analysis, are different than those offered by the proposed ODU program. This program emphasizes the ethical, moral, and societal implications of data science and students are encouraged to work with faculty to conduct research, while the ODU capstone is project-based, focused on real-world applications.

George Mason University (GMU)
The College of Science, Computational and Data Sciences Department offers a BS in Computational and Data Science.[33] As an interdisciplinary STEM-designated program, this degree addresses the role of computation in the areas of big data, modeling, and simulation and combines real-world computer science skills, data acquisition and analysis, scientific modeling, applied mathematics, and simulation.

Similarities
This program requires 120 credit hours including 16 credits from core coursework and 18 credits from courses selected from the extended core that support the major. These courses are augmented with 11 credits from math courses and six credits from statistics courses.

Differences
While the program provides the full data science skill set, it does not allow students to choose a specific concentration area for their studies, as is offered in the proposed ODU program.

Virginia Tech (VT):
The College of Sciences offers the Computational Modeling and Data Analytics (CMDA) program that draws on expertise from three primary departments: Mathematics, Statistics, and Computer Science.[34] The program focuses on extracting information from large data sets, as well as analyzing and solving problems by modeling, simulation, and optimization and emphasizes techniques of applied computation.

Similarities
This program requires 120 credit hours consisting of 36 credits from core coursework and 12 credits of restricted electives.

Differences
Students in this program choose one of the following concentrations: Biological Sciences, Cryptography & Cybersecurity, Economics, Geosciences or Physics. Except for Geosciences,

[33] https://science.gmu.edu/academics/departments-units/computational-data-sciences/computational-and-data-science-bs
[34] https://vt.edu/academics/majors/computational-modeling-and-data-analytics.html

these options are very different from the ODU proposed program concentrations.

Location

Old Dominion University is located in coastal Virginia. The proposed degree program will be the only undergraduate degree program in data science in the area.

Enrollment and Degrees Awarded at Comparable Programs in Virginia

Enrollment	**Fall 17**	**Fall 18**	**Fall 19**	**Fall 20**	**Fall 21**
College of William & Mary	NA	NA	NA	38	72
George Mason University	29	81	117	159	195
Virginia Tech	NA	NA	NA	NA	593
Degrees Awarded	**2016- 17**	**2017- 18**	**2018- 19**	**2019- 20**	**2020- 21**
College of William & Mary	NA	NA	NA	NA	8
George Mason University	NA	3	10	30	31
Virginia Tech	NA	NA	NA	NA	NA

Student Demand

Old Dominion University evaluated student demand for the proposed BS in Data Science from 1) a student survey and 2) enrollment trends for similar programs.

Student Survey

To be conducted later in accordance with SCHEV guidelines.

Enrollment in Existing Relevant Fields

Enrollment trends for four ODU data science relevant programs (Computer Engineering, Computer Science, Mathematics, and Information Systems) at the bachelor's level indicate sustained interest in this degree field.[35]

Enrollment Trends at ODU

Combined Enrollment Similar Fields	**2018**	**2019**	**2020**	**2021**
BS in Computer Engineering, Computer Science, Mathematics, and Information System	891	953	1071	956

[35] R. Wojtowicz (2021) "Data Science Initiative"

Summary of Projected Enrollments in Proposed Program

Year 1		Year 2		Year 3		Year 4			**Year 5 Target Year**		
2023 - 2024		2024 - 2025		2025 - 2026		2026 - 2027			2027 - 2028		
HDC	FTES	HDCT	FTES	HDC	FTES	HDCT	FTES	GRAD	HDCT	FTES	GRAD
75	50	100	70	150	100	200	140	50	220	155	60

Assumptions:
Retention percentage: 80%
Full-time students: 100% Part-time students: 0%
Full-time students credit hours per semester: 15
Full-time students graduate in 4 years

Projected Resource Needs for the Proposed Program

Resource Needs

Old Dominion University has all of the faculty, classified support, equipment, space, library, and other resources necessary to launch the proposed BS in Data Science. This program will be housed in the newly formed School of Data Science. The following subsections detail the resources required to operate the proposed program for its initiation in Fall semester 2023 through the target year 2026-27. Assessments of need for full-time, part-time, and adjunct faculty are based on a ratio of 1.0 FTE of instructional effort for every 20 FTE students in lower division courses and 14 FTE students in upper division courses The proposed program will require a total of 4 FTE of instructional effort in Fall 2023, rising to 12 FTE faculty by the target year of 2027-2028.

Full-Time Faculty
Two faculty members in the School of Data Science and one (1) faculty member in the Department of Computer Sciences and one (1) in the Department of Mathematics and Statistics will dedicate 50% of their time teaching the required courses in the proposed degree. In the initiation semester (Fall 2023) through the target year (2027-28), each faculty member will dedicate 0.5 FTE to the proposed program. One (1) faculty member in the School of Data Science and one faculty member in the Department of Philosophy and Religious Studies will dedicate 50% of their time teaching required courses starting in the second year of the program (Fall 2024) through the target year (2027-28), each faculty will dedicate 0.5 FTE to the proposed program.

Part-Time Faculty
The proposed degree program will require part-time faculty effort from the School of Data Science and different colleges and departments to support the concentration courses starting in the third year of the program (Fall 2025). Depending on concentration selections, the following commitments are anticipated:

The School of Data Science will provide 4 part-time faculty, resulting in 2.0 part-time instructional effort in the initiation semester through the target year in 2027-28.

The Department of Computer Science will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort in the initiation semester through the target year in 2027-28.

The Department of Mathematics and Statistics will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

The Department of Philosophy and Religious Studies will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

The Department of Electrical and Computer Engineering will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

The Department of Political Science and Geography will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

Adjunct Faculty
No adjunct faculty are required to launch and sustain the proposed degree program.

Graduate Assistants
No graduate assistants are required to launch and sustain the proposed degree program.

Classified Positions
The administrative assistant employed by the School of Data Science will support the proposed degree program. The program will require .5 FTE of classified support to launch the program and sustain the level of effort will remain constant through the target year. Salary for the administrative assistant will be $25,000 in salary and $11,812 in benefits.

Equipment (including computers)
No new equipment, including computers is necessary to launch and sustain the proposed degree program.

Library
No additional library resources are required to launch and sustain the proposed degree program. The University Libraries has resources to include journals, magazines, electronic materials, and other publications for data science and analytics. As a member of the Virtual Library of Virginia (VIVA), online access to journals is available.

Telecommunications
No new telecommunications resources are required to launch and sustain the proposed degree program.

Space
No new space is required to launch and sustain the proposed degree program.

Targeted Financial Aid
No targeted financial aid is required to launch and sustain the proposed degree program.

Other Resources (specify)
No other resources are needed to initiate or sustain the proposed degree program.

Funds to Initiate and Operate the Degree Program

Note: Institutions must use the recommended student-faculty ratio when estimating FTE enrollments and required faculty FTEs.

Cost and Funding Sources to Initiate and Operate the Program			
Informational Category		**Program Initiation Year 2023 - 2024**	**Program Full Enrollment Year[36] 2026 - 2027**
1.	Projected Enrollment (Headcount)	75	200
2.	Projected Enrollment (FTE)	50	140
3.	Projected Enrollment Headcount of In-State Students	60	160
4.	Projected Enrollment Headcount of Out-of-State Students	15	40
5.	Estimated Annual Tuition and E&G Fees for In-state Students in the Proposed Program	$11,630	$12,793
6.	Estimated Annual Tuition and E&G Fees for Out-of-State Students in the Proposed Program	$31,586	$34,745
7.	Projected Total Revenue from Tuition and E&G Fees Due to the Proposed Program	$1,171,590	$3,436,680
8.	Other Funding Sources Dedicated to the Proposed Program (e.g., grant, business entity, private sources)	$	$

[36] For the "Full Enrollment Year" use: for associate degrees, initiation year plus 1; for baccalaureate degrees, initiation plus 3; for master's degrees, initiation plus 2; for doctoral degrees, initiation plus 3.

Appendices

Appendix A – Sample Plan of Study

Full Time Student

Year	Fall Semester	Spring Semester
Freshman	ENGL 110C (Written Comm) (3)	ENGL 211C or ENGL 221C or ENGL 2 31C (Written Comm) (3)
	MATH 162M Precalculus I (Math) (3)	Interpreting the Past (See Advisor for Course Options) (3)
	COMM 101R or COMM 103R or Comm 112R or DANC/THEA 152R (Oral Comm) (3)	Human Behavior (See Advisor for Course Options)
	COMM 272G or CS 120G or CS 121G or STEM 251G (Information Literacy and Research) (3)	MATH 163. Precalculus II -> For CS 150 (3)
	DASC 15X – Languages for Data Science (3)	BDA 200T Elements of Data (3)
Sophomore	Nature of Science I (See Advisor for Course Options) (4)	Nature of Science II (See Advisor for Course Options) (4)
	STAT 130M – Elementary Statistics (3)	STAT 310 – Introduction to Data Analysis (3)
	CS 150. Problem Solving and Programming I (4)	CS 250. Problem Solving and Programming II. (4)
	Concentration Math Pre-Requisite #1 (3)	Concentration Math Pre-Requisite #2 (3)
Junior	DASC 300 – Foundations of Data Science (3)	DASC 3XX Ethics and Data (3)
	IT 360T. Principles of Information Technology (3)	IT 450. Database Concepts (3)
	Concentration Pre-Requisite #1 (3)	Concentration Course #1 (3)
	Concentration Pre-Requisite #2 (3)	Concentration Course #2 (3)
	Approved program or minor elective (4)	Approved program or minor elective (4)
Senior	ENGL 112L or ENGL 114L or WCS 100L (Literature) (3)	Human Creativity (See Advisor for Course Options) (3)
	DASC 434 Data Science Research Methods (3)	DASC 435 Data Science Capstone Project (3)
	Concentration Course #3 (3)	Concentration Course #4 (3)
	Concentration Course Option (3)	Approved program or minor elective (3)
	Approved program or minor elective (3)	Approved program or minor elective (3)

Credit Hours – Freshman – Fall Semester – 15
Credit Hours – Freshman – Spring Semester – 15
Credit Hours – Sophomore – Fall Semester – 14
Credit Hours – Sophomore – Spring Semester – 14
Credit Hours – Junior – Fall Semester – 16
Credit Hours – Junior – Spring Semester – 16
Credit Hours – Senior – Fall Semester – 15
Credit Hours – Senior – Spring Semester – 15

Total Credit Hours 120

Appendix B – Course Descriptions

New courses are denoted with an asterisk.

Core Courses

BDA 200T. Elements of Data Science. 3 Credits.
This course offers a non-technical introduction to the emerging and interdisciplinary area of data science. Students will be introduced to the development, fundamental tools, and the impact of data science in a wide range of disciplines such as business, the sciences and engineering. Fundamental data visualization techniques and basic concepts of machine learning will be applied through real-life data science projects. Moreover, students will explore the general framework for ethical thinking and practicing data science, the current challenges, the benefits, the potential harms and risks posed by developing data science models and technology. Prerequisites: MATH 102M or MATH 103M.

CS 150. Problem Solving and Programming I. 4 Credits.
Laboratory work required. Introduction to computer-based problem solving and programming in C++. Topics include problem solving methodologies, program design, algorithm development, and testing. C++ language concepts include variables, data types and expressions, assignment, control-flow statements, functions, arrays, pointers, structs, and classes. Pre- or corequisite: MATH 163.

CS 250. Problem Solving and Programming II. 4 Credits.
Laboratory work required. Design issues arising in software systems and C++ programming techniques aiding in their solution. Topics include the software life cycle, methods of functional decomposition, design documentation, abstract data types and classes, common data structures, dynamic data structures, algorithmic patterns, and testing and debugging techniques. Term project required. Prerequisites: CS 150 or ENGN 150 with a grade of C or better. Pre- or corequisite: CS 252 and MATH 211.

***DASC/CS 15X Computing Languages for Data Science.** 3 Credits

***DASC 300G. Foundations of Data Science.** 3 credits. This course provides an interdisciplinary overview of data sciences drawing on key elementary topics related to data analytics. A specific focus is given to the way that decisions made about data from those disciplinary pursuits inform policy, product development, and humanity.

***DASC 3XX Ethics and Data.** 3 Credits

***DASC 434 Data Science Research Methods**

***DASC 436W Data Science Capstone Project.** 3 Credits. Students work individually or in groups to plan, design, and carry out a research project demonstrating expertise with data science. Final papers which report the results for the study are presented in a formal research seminar. The projects reflect knowledge gained from undergraduate work and training received

in discipline-specific research methods and statistics courses. Senior standing.

IT 360T. Principles of Information Technology. 3 Credits.
A survey of computer hardware, software, procedures, applications, and management information concepts. Provides an understanding of the application of the computer to the support of managerial decision making. Information Systems majors may not use this course for credit toward the B.S.B.A. degree. Prerequisites: completion of general education information literacy and research requirement and junior standing; and a declared major in the University or permission of the Dean's Office.

IT 450. Database Concepts. 3 Credits.
Introduction to database concepts. Historical development, data models, database analysis, design and implementation, query languages, data security, and introduction to business transaction systems. Prerequisites: IT 201 with a C or better or IT 360T for non-IT major students and a declared major in the university or waiver approved through the Strome College of Business Undergraduate Advising; permission of the instructor is required for non-IT major students.

MATH 163. Precalculus II. 3 Credits.
The second course in a two-course sequence designed to provide strong preparation for calculus. Topics include exponential and logarithmic functions/equations, trigonometric functions/equations, trigonometric identities, laws of sines and cosines, vectors, polar representation of complex numbers, binomial theorem, and conic sections. Prerequisite: A grade of C or better in MATH 162M.

STAT 130M. Elementary Statistics. 3 Credits.
Topics include data description, elementary probability, binomial and normal distributions, interval estimation, hypothesis testing, and correlation. The role of probability in inference is emphasized. Prerequisites: qualifying score on a placement test administered by the University Testing Center, qualifying SAT or ACT score, MATH 100 or a C or better in MATH 101M, or a higher level math course.

STAT 310. Introductory Data Analysis. 3 Credits.
Topics include measures of location, dispersion, and strength of relationship; parametric and nonparametric tests of location; one-way analysis of variance; complete block designs; simple and multiple regression; correlation; measures of association for categorical data. Microsoft EXCEL will be used extensively as an aid in data analysis. Written interpretation of results will be a routine component of daily assignments. Prerequisites: A grade of C or better in STAT 130M or MATH 211.

Concentration Courses

1. Artificial Intelligence & Machine Learning

Math Prerequisites

MATH 211. Calculus I. 4 Credits.
A first course in calculus and analytic geometry. Topics include differentiation and integration of algebraic and transcendental functions of one variable and applications. Prerequisites: A grade of C or better in MATH 163 or MATH 166.

MATH 212. Calculus II. 4 Credits.
A second course in calculus and analytic geometry. Topics include techniques of integration, polar coordinates, infinite series, solid geometry, vectors, lines and planes. Prerequisite: A grade of C or better in MATH 211.

Course Prerequisites

CS 252. Introduction to Unix for Programmers. 1 Credit.
Laboratory work required. Available for pass/fail grading only. An introduction to Unix with emphasis on the skills necessary to be a productive programmer in Unix, Linux, and related environments. Topics include command line shells, files and directories, editing, compiling and common command line utilities. Prerequisites: A grade of C or better in CS 150, ENGN 150 or IT 205.

CS 361. Data Structures and Algorithms. 3 Credits.
Laboratory work required. Common abstract data types, including vectors, lists, stacks, queues, sets, maps, heaps, and graphs. Standard C++ interfaces for these ADTs. Generic programming via iterators and templates. Choosing data structures and algorithms to implement ADTs, via analysis of their time and space complexity. Prerequisites: CS 252 and a grade of C or better in CS 250. Pre- or corequisite: MATH 212.

Courses

CS 330. Object-Oriented Programming and Design. 3 Credits.
Laboratory work required. The techniques and idioms of object-oriented programming in C++ and Java. Methods of object-oriented analysis and design with the Unified Modeling Language. Multi-thread programs, synchronization, and graphic user interfaces. Prerequisites: CS 252 and a grade of C or better in CS 250. Pre- or corequisite: MATH 211.

CS 432/532. Web Science. 3 Credits.
Provides an overview of the World Wide Web and associated decentralized information structures, focusing mainly on the computing aspects of the Web: how it works, how it is used, and how it can be analyzed. Students will examine a number of topics including web architecture, web characterization and analysis, web archiving, Web 2.0, social networks, collective intelligence, search engines, web mining, information diffusion on the web, and the Semantic Web. Prerequisites: A grade of C or better in CS 361 and CS 330.

CS 422/522. Introduction to Machine Learning. 3 Credits.
Laboratory work required. An introduction to machine learning with a focus on practical aspects of various learning techniques. Topics include supervised learning (linear models, probabilistic

models, support vector machine, decision trees, neural networks, etc.), unsupervised learning (scaling, dimension reduction, clustering, etc.), reinforcement learning, and model evaluation. The course will also discuss applications on image analysis, text processing, and biomedical informatics. Prerequisites: MATH 316 and CS 150 (or equivalent programming experience).

CS 480/580. Introduction to Artificial Intelligence. 3 Credits.
Laboratory work required. Introduction to concepts, principles, challenges, and research in major areas of AI. Areas of discussion include natural language and vision processing, machine learning, machine logic and reasoning, robotics, expert and mundane systems. Prerequisites: A grade of C or better in CS 361.

BDA 411/511. Introduction to Machine Learning. 3 Credits.
An introductory course on machine learning. Machine Learning is the science of discovering pattern and structure and making predictions in data sets. It lies at the interface of mathematics, statistics and computer science. The course gives an elementary summary of modern machine learning tools. Topics include regression, classification, regularization, resampling methods, and unsupervised learning. Students enrolled are expected to have some ability to write computer programs, some knowledge of probability, statistics and linear algebra.
Prerequisites: MATH 312, MATH 316, and STAT 330 or STAT 331.

MSIM 480/580. Introduction to Artificial Intelligence. 3 Credits.
Introduction to concepts, principles, challenges, and research in major areas of artificial intelligence. Areas of discussion include natural language and vision processing, machine learning, machine logic and reasoning, robotics, expert and mundane systems. Laboratory work required. Prerequisite: Instructor approval.

ECE 407/507. Introduction to Game Development. 3 Credits.
An introductory course focused on game development theory and modern practices with emphasis on educational game development. Topics include game architecture, computer graphics theory, user interaction, audio, high level shading language, animation, physics, and artificial intelligence. The developed games can run on a variety of computer, mobile, and gaming platforms. (Cross listed with MSIM 408.) (Offered spring)
Prerequisites: CS 361 or MSIM 331.

CYSE 420/520. Applied Machine Learning in Cybersecurity. 3 Credits.
This course introduces the concepts and technologies of machine learning with a focus on applications related to cybersecurity. The objectives are to learn fundamental knowledge and practical experience and identify the use case of machine learning techniques in cybersecurity. The course will discuss traditional and advanced machine learning techniques, e.g., neural network, deep convolutional neural network, generative adversarial network, and transfer learning algorithms. Students will engage in oral and written communication by reporting and presenting the materials of the course project. Prerequisites: CYSE 250 or permission of the instructor.

ECE 450/550. Introduction to Machine Learning for Data Analytics Engineering. 3 Credits.
Machine Learning provides a practical treatment of design, analysis and implementation of

algorithms, which learn from examples. Topics include multiple machine learning models: linear regression, logistic regression, neural networks, support vector machines, deep learning, Bayesian learning and unsupervised learning. Students are expected to use popular machine learning tools and algorithms to solve real data engineering problems. (Offered spring) Prerequisites: A grade of C or better in ENGN 150 or CS 150. Pre- or corequisite: ECE 350.

2. Visualization

Math Prerequisites

MATH 212. Calculus II. 4 Credits.
A second course in calculus and analytic geometry. Topics include techniques of integration, polar coordinates, infinite series, solid geometry, vectors, lines and planes. Prerequisite: A grade of C or better in MATH 211.

Course Prerequisites

BNAL 206. Business Analytics I. 3 Credits.
An introduction to methods of business analytics. Topics are concentrated in descriptive analytics, which include descriptive statistics, normal and binomial distributions, decision making under uncertainty and under risk, decision analysis incorporating sample information, sampling distributions and Central Limit Theorem, interval estimation, and hypothesis testing. Business and economic applications are emphasized. Computer software, as a tool for problem solving, is utilized where appropriate. Prerequisites: A grade of C or better in MATH 162M or placement into a higher level math course.

BNAL 306. Business Analytics II. 3 Credits.
Advanced descriptive and predictive analytics topics include advanced hypothesis testing, analysis of frequency data, correlation analysis, simple and multiple regression, and time series forecasting. Prescriptive analytics topics include linear programming formulation and managerial analysis, and distribution models. PERT/CPM models are also covered. Computer software is utilized throughout the course. Emphasis is on the interpretation of the various outcomes of the application of business analytics tools. Prerequisites: MATH 200, BNAL 206 and a declared major in the University or permission of the Dean's Office.

CS 252. Introduction to Unix for Programmers. 1 Credit.
Laboratory work required. Available for pass/fail grading only. An introduction to Unix with emphasis on the skills necessary to be a productive programmer in Unix, Linux, and related environments. Topics include command line shells, files and directories, editing, compiling and common command line utilities. Prerequisites: A grade of C or better in CS 150, ENGN 150 or IT 205.

GAME 201T. Introduction to Game Studies. 3 Credits.
An introduction to the core concepts and methodologies that inform game design, development, and criticism. This course will provide students with a critical overview of each of these content

areas and will demonstrate how their specific concerns intersect in the design, production, and reception of contemporary games. It will also teach students hands-on methodologies through which to translate these concepts into creative and critical praxis.

Courses

BNAL 403/503. Data Visualization and Exploration. 3 Credits.
This course introduces students to concepts and processes, technologies, and methodologies that are commonly used in data visualization that an organization may use to enhance its descriptive, predictive, and prescriptive methods for making fact-based decisions. Prerequisite: A grade of C or better in BNAL 306 or permission of the instructor.

CS 361. Data Structures and Algorithms. 3 Credits.
Laboratory work required. Common abstract data types, including vectors, lists, stacks, queues, sets, maps, heaps, and graphs. Standard C++ interfaces for these ADTs. Generic programming via iterators and templates. Choosing data structures and algorithms to implement ADTs, via analysis of their time and space complexity. Prerequisites: CS 252 and a grade of C or better in CS 250. Pre- or corequisite: MATH 212.

ECE 406/506. Computer Graphics and Visualization. 3 Credits.
The course provides a practical treatment of computer graphics and visualization with emphasis on modeling and simulation applications. It covers digital image and signal processing basics such as sampling and discrete Fourier transform, computer graphics fundamentals, visualization principles, and software architecture for visualization in modeling and simulation. Written communication and information literacy skills are stressed in this course. (Cross listed with MSIM 441.) (Offered fall) Prerequisites: ECE 348 or CS 361.

GAME 340. Visual Design and Digital Graphics for Games. 3 Credits.
This course focuses on visual design and digital graphics for game-based applications. Designed to help students make the transition from traditional 2D drawing and illustration techniques to the types of 2D and 3D digital asset creation privileged by games and game-based applications, it provides students with hands-on experience with using industry standard software to generate sprites, UI components, textures, and other common 2D elements. It also introduces students to 3D modeling and texturing techniques, including but limited to optimization, texture mapping, and basic rigging and animation techniques. Prerequisites: GAME 201T.

ARTH 320W. History of Graphic Design. 3 Credits.
A critical study of the formal, cultural, and intellectual developments of the graphic design discipline, including related activity in fine art, illustration, and industrial design. This is a writing intensive course. Prerequisites: Grade of C or better in ENGL 211C or ENGL 221C or ENGL 231C.

CRJS 344. Social Science and Crime Mapping. 3 Credits.
A critical exploration of applying geographic information system (GIS) to view, understand, question, interpret, and visualize social science and crime data that reveal relationships, patterns, and trends. Students will learn to 1) frame a research question or hypothesis from a location-

based perspective; 2) collect, create and examine geographically referenced demographic, social, and criminological data; 3) learn to use GIS mapping software to visualize, manage and analyze this data in order to investigate the relationship between geographic, demographic, social and criminological variables; and 4) arrive upon decisions and conclusions and communicate these via the creation of publishable maps. Prerequisites: SOC 201S or CRJS 215S or permission of the instructor.

ECE 475/575. Transportation Data Analytics. 3 Credits.
This course presents the basic techniques for transportation data analytics. It will discuss statistical modeling, prominent algorithms, and visualization approaches to analyze both small- and large-scale data sets generated from transportation systems. Practices of using different data for various real-world traffic/transportation applications and decision making will also be discussed. Prerequisites: Basic probability and statistics (e.g., STAT 330 or ECE 304); any programming language such as C, Python or Java is beneficial but not required.

ECE 407/507. Introduction to Game Development. 3 Credits.
An introductory course focused on game development theory and modern practices with emphasis on educational game development. Topics include game architecture, computer graphics theory, user interaction, audio, high level shading language, animation, physics, and artificial intelligence. The developed games can run on a variety of computer, mobile, and gaming platforms. (Cross listed with MSIM 408.) (Offered spring)
Prerequisites: CS 361 or MSIM 331.

ECE 441/541. Advanced Digital Design and Field Programmable Gate Arrays. 3 Credits.
Course will present FPGA technologies and methods using CAD design tools for implementation of digital systems using FPGAs. Topics include advanced methods of digital circuit design including specification, synthesis, implementation and prototyping; managing multiple clock domains, static timing analysis, timing closure, system reset design, simulation, and optimization; troubleshooting using embedded logic analyzers and integrated development environments (IDEs). Practical system design examples include general purpose data processing, system on a chip (SOC) prototyping, hardware accelerators, and an introduction to domain specific architectures. (Offered spring) Prerequisites: ECE 341.

GAME 440. Advanced Visual Design and Digital Graphics for Games. 3 Credits.
This course focuses on advanced visual design and digital graphics for game-based applications, including but not limited to topics such as 3D modeling, texturing, texture mapping, animation, optimization, shaders, and particle systems. Conceived as a studio course, it provides students with hands-on experience working with a variety of digital software applications to create and optimize graphical assets for games and similar applications. Prerequisites: GAME 201T.

IT 325. Web Site and Web Page Design. 3 Credits.
Advanced design and hands-on implementation skills in designing and creating dynamic web sites. Key topics include web page design, usability principles, HTML, XHTML, Cascading Style Sheets (CSS), JavaScript and Internet security. Prerequisites: IT 150G.

3. Geospatial Analysis

General Prerequisites

GEOG 102T. Digital Earth: Geospatial Technology and Society. 3 Credits.
This course provides an overview and exploration of 1) the digital representation of the Earth and 2) geospatial science and technology. The course investigates geospatial technological innovations affecting the environment, resources, and society, including satellite global positioning systems, geographic information systems, and earth observations. Students develop hands-on skills as well as critical-thinking skills concerning the role of increasingly ubiquitous geospatial technology and their influences on social, economic, and human-environment interactions.

Course Prerequisites

GEOG 402/502. Geographic Information Systems. 3 Credits.
A study of the conceptual basis of GIS as a tool for manipulating spatial information. The course focuses on how geographic information can be input and organized within the framework of a GIS. Students will work on a computer-based GIS to gain a greater understanding of spatial database structures and analytical operations. Prerequisites: Junior standing or permission of instructor.

GEOG 404/504. Digital Techniques for Remote Sensing. 3 Credits.
Study of the theory and application of remote sensing, emphasizing environmental applications and aerial and satellite imagery. Covers the fundamentals of multispectral digital image processing, including sensors pre-processing, enhancement, classification, accuracy assessment, and GIS data integration. Prerequisites: Junior standing or permission of instructor.

Courses

GEOG 419/519. Spatial Analysis of Coastal Environments. 3 Credits.
The course integrates remotely sensed and field techniques for scientific investigation and practical management of coastal environmental systems. Spatial modeling of coastal processes and management tools using Geographic Information System (GIS). Prerequisites: GEOG 404 or permission of the instructor.

GEOG 425/525. Internet Geographic Information Systems. 3 Credits.
Theoretical and practical exploration of methods, standards, and policies related to the development and utilization of geographic information systems on the Internet. Students will create and utilize distributed geospatial data and analytical systems using the WWW and the Internet to address geographical problems. Prerequisites: GEOG 402.

GEOG 432/532. Advanced GIS. 3 Credits.
The study of a series of advanced topics in the field of geographic information systems/science. Focus is placed on the development of projects/models and a survey of several advanced techniques. Students will work on a computer-based GIS to implement topics from lectures.

Prerequisites: GEOG 402.

GEOG 462/562. Advanced Spatial Analysis. 3 Credits.
This course introduces the essential theoretical concepts and analytical tools for analyzing spatial process, spatial autocorrelation, spatial patterns, techniques for spatial interpolation, network connectivity, big data, and landscape patterns. The course culminates with students carrying out their own spatial analysis projects. This course assumes that students understand the basic concepts in GIS with some experience in software operation of ArcGIS.
Prerequisite: GEOG 402 or permission of the instructor.

GEOG 463/563. GIS Programming. 3 Credits.
This course develops students' GIS programming skills. Focus is placed on Python programming in ArcGIS and JavaScript in Web GIS development. Prerequisites: GEOG 402.

GEOG 473/573. Geographic Information Systems for Emergency Management. 3 Credits.
Students will demonstrate advanced skills and techniques using spatial data to prevent, mitigate, respond to, and recover from intentional, natural, and accidental homeland security threats and emergencies. This course demonstrates the importance of rapidly disseminating spatial information towards the prevention and response of various organizations to homeland security events. This course will provide students with the tools and experience required to collect, prepare and manage spatial data and enable students to be prepared to map and analyze the data to quickly and effectively create a coordinated response to real homeland security events.
Prerequisites: GEOG 100S, GEOG 101S, or permission of the instructor.

Appendix C – Faculty Curriculum Vitae (abbreviated)

College of Sciences, Department of Computer Science

Sun, Jiangwen, Ph.D., Computer Science and Engineering, University of Connecticut, 2015, Assistant Professor, Specialization: Machine Learning and Data Mining Techniques

Li, Yaohang, Ph.D., Computer Science, Florida State University, 2003, Professor, Specialization: Computational Science, High Performance Computing

College of Engineering, Department of Electrical and Computer Engineering

Chen, Chung Hao, Ph.D., Electrical Engineering, University of Tennessee, Knoxville, 2009, Associate Professor, Specialization: Computer Vision, Robotics, Image Processing, Data Mining

Li, Jiang, Ph.D., Electrical Engineering, University of Texas at Arlington, 2004, Associate Professor, Specialization: Machine learning, Modeling, and Simulation

College of Arts and Letters, Department of Political Science and Geography

Liu, Hua, Ph.D., Geography, Indiana State University, 2007, Associate Professor, Specialization: Remote Sensing and Geographic Information Systems

College of Arts and Letters, Department of Philosophy and Religious Studies

Kouri Kissel, Teresa, Ph.D., Philosophy, The Ohio State University, 2016, Assistant Professor, Specialization: Philosophy of Logic, Mathematics, and Language

Appendix D - Employee Demand Job Announcements

Number	Date Retrieved	Position, Company, Location
1	9/8/22	Data Scientist Jefferson Lab Newport News, VA
2	9/8/2022	Cybersecurity Data Scientist (Hybrid) The MITRE Corporation Hampton, VA
3	9/8/2022	Data Scientist Systems Planning and Analysis, Inc. Norfolk, VA
4	9/8/2022	Data Engineer CTG Norfolk, VA
5	9/8/2022	DATA SCIENTIST Military Sealift Command Virginia
6	9/8/2022	Data Scientist, Lead - 39092 Huntington Ingalls Industries Norfolk, VA
7	9/8/2022	Data Scientist Booz Allen Hamilton Norfolk, VA
8	9/8/2022	Python Data Scientist Latitude, Inc. Norfolk, VA
9	9/8/2022	Data Scientist / Data Analytics SkyePoint Decisions Virginia Beach, VA
10	9/8/2022	Data Analyst BigBear.ai, Inc. Norfolk, VA

Data Scientist

SAVED

Jefferson Lab
Newport News, VA

Apply on Jefferson Lab | Apply on Getwork | Apply on Adzuna | Apply on Recruit.net | Apply on Tarta.ai

Full-time | Health insurance | Dental insurance | Paid time off

Job highlights

Identified by Google from the original job post

Qualifications

- Be a proactive, highly motivated self-starter with demonstrated experience with contributing and leading tasks on major projects with multi-disciplinary teams
- BS degree in computer science, information systems or other relevant information technology field
- Six years of experience in relevant IT field
- Ability to work with large data sets and mine relevant information for use in AI/ML applications
- Proficiency in Python and familiarity with publicly available technical libraries for data analytics (e.g. scikit-learn), deep learning (e.g. Pytorch, Tensorflow) and optimization tools
- Demonstrated ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products

Responsibilities

- The Computational Sciences and Technology (CST) division is responsible for the support of scientific computing projects and the computing infrastructure that advance the science mission of the laboratory
- Uncertainty quantification for single pass deep learning models
- Automated and autonomous for design and control applications
- Robust and scalable Machine Learning (ML)/Artificial Intelligence (AI) solutions
- Identify, lead and complete technical efforts in data science for projects at Jefferson Lab and sponsors
- Contribute to program development by assisting in proposal writing, attend DOE workshops and identifying new collaboration
- Develop software for HPC system across the DOE computing facilities

- Work with large datasets and mine relevant information for use in AI/ML applications
- Demonstrate ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products

Benefits

- Salary Range: $107,400 - $169,600 (SCS III)
- At Jefferson Lab, we believe that a comprehensive employee benefits program is an important and meaningful part of the compensation employees receive
- Medical, Dental, and Vision Care Plans
- Flexible Spending Accounts
- Paid Time-off and Leave Programs (vacation, holidays, sick leave)
- 401(k) Plan – 9% Lab Contribution; 100% vested
- Flexible Work Arrangements (Hybrid & Alternate Work Schedules available)
- Tuition Assistance, Training and Professional Development Programs
- Live near the waterways of the Chesapeake Bay region with access to nearby beaches, mountains, and all major metropolitan centers on the East Coast

Full description

As a matter of corporate policy, all JSA employees are required to be vaccinated against COVID-19. All successful hires will be required to provide COVID-19 vaccination verification as a condition of employment, subject to limited legally

recognized exemptions to the COVID-19 vaccination.

Posting Date: 07/27/2022
Salary Range: $107,400 - $169,600 (SCS III)
Work Location Type: Flexible On-site (working more than 60% on-site)

Come join our team at Jefferson Lab, where great minds matter.

What your job will be like:

The Computational Sciences and Technology (CST) division is responsible for the support of scientific computing projects and the computing infrastructure that advance the science mission of the laboratory. The mission for the data science department is to develop and apply advance data analytics to advance the Jefferson Lab scientific objective and regional scientific efforts. The Data Science Department at Jefferson Lab is conducting research and development in machine learning and data analysis focused on:
• Uncertainty quantification for single pass deep learning models
• Automated and autonomous for design and control applications
• Robust and scalable Machine Learning (ML)/Artificial Intelligence (AI) solutions

In this role you will:
• Identify, lead and complete technical efforts in data science for projects at Jefferson Lab and sponsors
• Contribute to program development by assisting in proposal writing, attend DOE workshops and identifying new collaboration
• Develop software for HPC system across the DOE computing facilities
• Work with large datasets and mine relevant information for use in AI/ML applications
• Demonstrate ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products.
• Be a proactive, highly motivated self-starter with demonstrated experience with contributing and leading tasks on major projects with multi-disciplinary teams.

Qualifications we require:

Education:
• BS degree in computer science, information systems or other relevant information technology field.

Experience:
• Six years of experience in relevant IT field

Knowledge, Skills and Abilities:
• Ability to work with large data sets and mine relevant information for use in AI/ML applications
• Proficiency in Python and familiarity with publicly available technical libraries for data analytics (e.g. scikit-learn), deep learning (e.g. Pytorch, Tensorflow) and optimization tools
• Proactive, highly motivated self-starter with demonstrated experience with contributing and leading tasks on major projects with multi-disciplinary teams.
• Demonstrated ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products.

About Jefferson Lab

Join a community with a common purpose of solving the most challenging scientific and engineering problems of our time. The Jefferson Lab campus is located in southeastern Virginia amidst a vibrant and growing technology community.

A career at Jefferson Lab is more than a job. You will be part of “big science” and work alongside top scientists and engineers from around the world unlocking the secrets of our visible universe. Managed by Jefferson Science Associates, LLC; Thomas Jefferson National Accelerator Facility is entering an exciting period of mission growth and is seeking new team members ready to apply their skills and passion to have an impact. You could call it work, or you could call it a mission. We call it a challenge. We do things that will change the world.

Total Rewards at Jefferson Lab

At Jefferson Lab, we believe that a comprehensive employee benefits program is an important and meaningful part of the compensation employees receive. Our benefits program includes, but is not limited to:
• Medical, Dental, and Vision Care Plans
• Flexible Spending Accounts
• Paid Time-off and Leave Programs (vacation, holidays, sick leave)
• 401(k) Plan – 9% Lab Contribution; 100% vested
• Flexible Work Arrangements (Hybrid & Alternate Work Schedules available)
• Tuition Assistance, Training and Professional Development Programs
• Live near the waterways of the Chesapeake Bay region with access to nearby beaches, mountains, and all major metropolitan centers on the East Coast

Jefferson Science Associates, LLC (JSA) manages and operates the Thomas Jefferson National Accelerator Facility (Jefferson Lab). JSA is an Equal Opportunity Employer and does not discriminate in hiring or employment on the basis of race, color, religion, ethnicity, sex, sexual orientation, gender identity, national origin, ancestry, age, disability, or veteran status or on any other basis prohibited by federal, state, or local law. As part of the JSA’s equal employment opportunity policy, we also take affirmative action as called for by applicable laws and Executive Orders to ensure that minority group individuals, females, disabled veterans, recently separated veterans, other protected veterans, Armed Forces, and qualified disabled persons are introduced into our workforce and considered for promotional opportunities.

JSA is committed to providing reasonable accommodations for persons with disabilities (unless doing so will result in an undue hardship). If you need a reasonable accommodation for any part of the employment process, please send an e-mail to employment @ jlab.org call (757) 269-7598 to provide the nature of your request. Reasonable accommodations are considered on a case-by-case basis.

Employment with JSA is conditional upon DOE approval if at any time during your employment you are participating in a Foreign Government Talent Recruitment Program or Affiliated activity. Generally, such programs/activities include any foreign-state-sponsored attempt to acquire U.S.-funded scientific research through programs run or funded by the government that target scientists, engineers, students, academics, researchers, and entrepreneurs of all nationalities working or educated in the United States. This includes positions or appointments, both domestic and foreign, titled academic, professional, or institutional appointments whether or not remuneration is received and whether full-time, part-time or voluntary

Cybersecurity Data Scientist (Hybrid)

SAVE

The MITRE Corporation
Hampton, VA

Apply on Job\Searcher Apply on WHNT Jobs Apply on KHON2 Jobs Apply on KDVR Jobs Apply on

7 days ago Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- + Excellent written and verbal communication skills, adapted to a variety of audiences
- + Proven skills in data science related to data wrangling and analysis of data
- + Applicants selected for this position must be eligible for security clearances, will be subject to a government security investigation, and must meet eligibility requirements for access to classified information
- + Typically requires a minimum of 5 years of related experience with a Bachelor's degree; or 3 years and a Master's degree; or a PhD with relevant experience who can immediately contribute at this job step; or equivalent combination of related education and work experience
- + Experience in a customer-facing environment
- + Experience working with teams

Responsibilities

- You will work on real-world problems through the application of sound engineering principles
- + Be comfortable leading tasks, contributing to a team or working independently
- + Respect a diversity of opinion but also be willing to stand your ground when needed
- + Assess the audience and tailor feedback with the receiver's point of view in mind
- + Organize and visually display analytic results for further analysis
- + Prepare comprehensive written reports, presentations, and charts based on research, collection, and analysis of data

Benefits

- $107,500 - $134,500 - $161,500 Annual

- + Experience with cyber analytics
- + Demonstrated experience visualizing multi-dimensional data using tools such as Tableau, Qlik, Kibana, neo4j, ggplot2, Plotly, matplotlib, or D3
- + Demonstrated experience with one modern programming language such as Python, C

Full description

• Why choose between doing meaningful work and having a fulfilling life?
• At MITRE, you can have both.
• That's because MITRE people are committed to tackling our nation's toughest challenges-and we're committed to the long-term well-being of our employees
• MITRE is different from most technology companies.
• We are a not-for-profit corporation chartered to work for the public interest, with no commercial conflicts to influence what we do.
• The R&D centers we operate for the government create lasting impact in fields as diverse as cybersecurity, healthcare, aviation, defense, and enterprise transformation.
• We're making a difference every day-working for a safer, healthier, and more secure nation and world.
• Our workplace reflects our values.
• We offer competitive benefits, exceptional professional development opportunities, and a culture of innovation that embraces diversity, inclusion, flexibility, collaboration, and career growth.
• If this sounds like the choice you want to make, then choose MITRE-and make a difference with us.
• The Center for Securing the Homeland (CSH) Cyber Analytics Department (P742) is seeking a Cybersecurity Data Scientist who will join a team of Data Scientists, Analysts, and Engineers.
• The explosion of data and complexity of problems facing MITRE's sponsors requires an innovative approach which MITRE is leading through the application of new technology and techniques.
• You will work on real-world problems through the application of sound engineering principles.
• Candidates who identify as Data Engineers, Data Scientists, Cloud Engineers, Software Developers, or Software Engineers will be considered strong candidates for this position.
• + Be comfortable leading tasks, contributing to a team or working independently
• + Incorporate feedback and strive for a continuous growth mindset
• + Respect a diversity of opinion but also be willing to stand your ground when needed
• + Assess the audience and tailor feedback with the receiver's point of view in mind
• + Display technical leadership and a growth mindset to learn new skills
• + Demonstrate excellent written and verbal communication skills
• + Perform data wrangling, analyze large and diverse datasets and demonstrate expertise with at least one modern programming language such as Python, R, Java or Scala
• + Organize and visually display analytic results for further analysis
• + Prepare comprehensive written reports, presentations, and charts based on research, collection, and analysis of data
• + Excellent written and verbal communication skills, adapted to a variety of audiences

- + Proven skills in data science related to data wrangling and analysis of data
- + Applicants selected for this position must be eligible for security clearances, will be subject to a government security investigation, and must meet eligibility requirements for access to classified information.
- + Typically requires a minimum of 5 years of related experience with a Bachelor's degree; or 3 years and a Master's degree; or a PhD with relevant experience who can immediately contribute at this job step; or equivalent combination of related education and work experience.
- + Experience in a customer-facing environment
- + Experience working with teams
- + Experience with cyber analytics
- + Experience with data visualization
- + Demonstrated experience visualizing multi-dimensional data using tools such as Tableau, Qlik, Kibana, neo4j, ggplot2, Plotly, matplotlib, or D3.
- + Demonstrated experience with one modern programming language such as Python, C
- $107,500 - $134,500 - $161,500 Annual
- Newly hired employees must be fully vaccinated prior to their employment start date.
- MITRE will provide reasonable accommodation to individuals who are legally entitled to an exemption under applicable laws so long as it does not create an undue hardship for MITRE and/or does not pose a direct threat to the health or safety of the employee or others in the workplace.
- MITRE is proud to be an equal opportunity employer.
- MITRE recruits, employs, trains, compensates, and promotes regardless of age; ancestry; color; family medical or genetic information; gender identity and expression; marital, military, or veteran status; national and ethnic origin; physical or mental disability; political affiliation; pregnancy; race; religion; sex; sexual orientation; and any other protected characteristics.
- MITRE intends to maintain a website that is fully accessible to all individuals.
- If you are unable to search or apply for jobs and would like to request a reasonable accommodation for any part of MITRE's employment process, please contact MITRE's Recruiting Help Line at 703-983-8226 or email at recruitinghelp@mitre.org.
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- Benefits information may be found here

Data Scientist

SAVE

Systems Planning and Analysis, Inc.
Norfolk, VA

Apply on Glassdoor Apply on LinkedIn Apply on ZipRecruiter Apply on My Stateline Jobs Apply on C

11 days ago Full-time Health insurance

Job highlights

Identified by Google from the original job post

Qualifications

- Active NATO or National SECRET (or higher) security clearance
- University degree in Data Science/Data Analytics or a related discipline such as Mathematics, Physics, Computer Science, Software Engineering, OR four years minimum professional experience in the area of Data Science including providing analysis and advice in the field of Data Science within the last five years
- Experience with data science and data science best practices, in particular applied mathematics and statistics
- Experience in modern software architecture and software development related to data science, analytics, and data integration (e.g., Python, SQL, R, KNMIE)
- Experience with machine learning and AI frameworks using TensorFlow, PyTorch, scikit-learn, or other modern machine learning frameworks

Responsibilities

- Contribute to the development and implementation of an enabling data science capability at HQ SACT and for the NATO Enterprise;
- Support execution and implementation of identified analytic opportunities for data analytics, data science, and AI within HQ SACT;
- Contribute to development of advanced Data Science products in form of Minimum Viable Products (MVP), in particular in support of the ACT Innovation Branch;
- Provide subject matter expertise to (military and civilian) staff, support ORS and CPP development, and develop proofs of concept;
- Collaborate with international civilian and military staff officers, data science, and software development teams;
- Support training and training development to increase data literacy

- Knowledge of big data ecosystems and standards
- Experience building and optimizing data pipelines and architectures
- Experience visualizing data and producing high quality graphs, reports, charts, and interactive dashboards
- Experience with data visualization tools such as Tableau or MS Power BI
- Experience working with open source and publicly available data
- Experience with data interoperability and metadata standards (NCDF, STANAGs)
- Experience with agile methodologies
- Experience providing training in various areas related to data science, analytics, and AI at different technical levels
- Experience with all steps of the data science lifecycle to include delivering data products to customers
- Experienced ‘data storyteller’, i.e., communicate efficiently across a diverse audience such as the NATO organization
- Portfolio of demonstrable products available via GitLab or other platforms
- Experience working on a NATO or military (preferably multi-national) staff
- Deep understanding of the NATO organization and its functions
- Knowledge and understanding of warfighting and principles of warfare

Benefits

- You’ll be rewarded with top-tier compensation and benefits

- Knowledge of requirements capture and capability development, in particular in a military context
- Experience in project management
- Proven ability to communicate effectively orally and in writing, with excellent briefing skills
- Fluent in English (written and oral)

Full description

Overview:

MCR, an SPA company, is a fast-growing global company headquartered in Northern Virginia that supports defense and civilian agencies, NATO, and European ministries that face some of the most complex mission challenges in the world. If you are the best at what you do, we are looking for you. At MCR/SPA, you will contribute to programs and projects that matter—to your career, to your fellow citizens, and to your nation. You will use the latest technologies, techniques, and tools. You will be trusted to work independently and make decisions. You'll be rewarded with top-tier compensation and benefits.

NATO established Headquarters Allied Commander Transformation (HQ ACT) in Norfolk, VA, in 2003 to lead transformation efforts and improve military capabilities to meet 21st century security and defense requirements. The majority of the products and services within iHub are falling under a category of Software Intensive Projects (SIP). Those projects are either strictly software development endeavors or there is a large software component that constitutes part of the project. The backlog of iHub projects is constantly growing and so is the demand for iHub services. With that rapid growth, the iHub is looking for top talent individuals to become members of its existing teams in order to assure the continuous delivery of already existing services and to increase pace of production of new products and services.

Are you a Data Scientist looking to make a meaningful impact in creative environment? If so, we are eager to have someone like you join our team of experts supporting NATO.

Responsibilities:
• Contribute to the development and implementation of an enabling data science capability at HQ SACT and for the NATO Enterprise;
• Support execution and implementation of identified analytic opportunities for data analytics, data science, and AI within HQ SACT;
• Contribute to development of advanced Data Science products in form of Minimum Viable Products (MVP), in particular in support of the ACT Innovation Branch;
• Provide subject matter expertise to (military and civilian) staff, support ORS and CPP development, and develop proofs of concept;
• Collaborate with international civilian and military staff officers, data science, and software development teams;
• Support training and training development to increase data literacy.

Qualifications:
• Active NATO or National SECRET (or higher) security clearance
• University degree in Data Science/Data Analytics or a related discipline such as Mathematics, Physics, Computer Science, Software Engineering, OR four years minimum professional experience in the area of Data Science including providing analysis and advice in the field of Data Science within the last five years
• Experience with data science and data science best practices, in particular applied mathematics and statistics
• Experience in modern software architecture and software development related to data science, analytics, and data integration (e.g., Python, SQL, R, KNMIE)
• Experience with machine learning and AI frameworks using TensorFlow, PyTorch, scikit-learn, or other modern machine learning frameworks
• Knowledge of big data ecosystems and standards
• Experience building and optimizing data pipelines and architectures
• Experience visualizing data and producing high quality graphs, reports, charts, and interactive dashboards
• Experience with data visualization tools such as Tableau or MS Power BI
• Experience working with open source and publicly available data
• Experience with data interoperability and metadata standards (NCDF, STANAGs)
• Experience with agile methodologies
• Experience providing training in various areas related to data science, analytics, and AI at different technical levels
• Experience with all steps of the data science lifecycle to include delivering data products to customers
• Experienced ‘data storyteller’, i.e., communicate efficiently across a diverse audience such as the NATO organization
• Portfolio of demonstrable products available via GitLab or other platforms
• Experience working on a NATO or military (preferably multi-national) staff
• Deep understanding of the NATO organization and its functions
• Knowledge and understanding of warfighting and principles of warfare
• Knowledge of requirements capture and capability development, in particular in a military context
• Experience in project management
• Proven ability to communicate effectively orally and in writing, with excellent briefing skills
• Fluent in English (written and oral

Data Engineer

SAVE

CTG
Norfolk, VA

Apply on Lensa Apply on CareerBuilder Apply on LocalJobs.com Apply on Nexxt Apply on Job\Sear

19 days ago Part-time Health insurance

Job highlights

Identified by Google from the original job post

Qualifications

- Bachelors degree in Computer Science, Information Technology or related field; OR equivalent 3+ years of experience
- 3+ years of hands-on experience programming in SQL
- 2+ years of experience building and maintaining automated data pipelines and data assets using batch and/or streaming processes
- Data Transformation
- Data Modeling
- Data Quality
- Datasets
- User Experience
- Data Governance
- Data Management
- Databases
- ETL
- Education Level: Bachelor's Degree (±16 years)

Responsibilities

- Project Duration: 12 months
- Design and maintain data pipelines and services using best practice for ETL/ELT, data management and data governance
- Analyze raw data sources and data transformation requirements
- Perform data modeling against large datasets for peak requirements
- Identify, design and implement process improvement solutions that automate manual processes and leverage standard frameworks and methodologies
- Understand and incorporate data quality principals that ensure optimal performance, impact and user experience
- Create and document functional and technical specifications
- Perform ongoing research to explore new features, versions and related technologies, and

provide recommendations to enhance our offerings

Benefits

- CTG's Benefits Plan allows you to select insurance coverage that best suits your lifestyle, and take part in our savings programs and educational plans
- We offer Flexible Spending Accounts, a 401(k) Retirement Plan, and an Employee Stock Purchase plan
- Our educational plan comprises access to more than 2,000 web-based technical, professional and business development courses

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Full description

Data Engineer

United States

Information Technology

Aug 18, 2022Post Date

22202138Requisition #

Apply for JobShare this JobSign Up for Job Alerts

Computer Task Group (CTG) is seeking aData Engineerto work with a premiere healthcare customer inRochester, MN.

Project Location: Rochester, MN

Project Duration: 12 months

Duties:

Design and maintain data pipelines and services using best practice for ETL/ELT, data management and data governance. Analyze raw data sources and data transformation requirements. Perform data modeling against large datasets for peak requirements. Identify, design and implement process improvement solutions that automate manual processes and leverage standard frameworks and methodologies. Understand and incorporate data quality principals that ensure optimal performance, impact and user experience. Create and document functional and technical

specifications. Perform ongoing research to explore new features, versions and related technologies, and provide recommendations to enhance our offerings

Skills: Healthcare Data knowledge and experience, Healthcare APIs, FHIR, Big Query

Experience and Education Requirements:
• Bachelors degree in Computer Science, Information Technology or related field; OR equivalent 3+ years of experience.
• 3+ years of hands-on experience programming in SQL.
• 2+ years of experience building and maintaining automated data pipelines and data assets using batch and/or streaming processes.

Skills Required:
• SQL
• Data Transformation
• Data Modeling
• Data Quality
• Datasets
• Process Improvement
• Technical Specifications
• User Experience
• Data Governance
• Data Management
• Data Sources
• Databases
• ETL
• Governance
• Maintain Data

To Apply:

To be considered, please apply directly to this requisition using the link provided.

CTG’s Benefits Plan allows you to select insurance coverage that best suits your lifestyle, and take part in our savings programs and educational plans. We offer Flexible Spending Accounts, a 401(k) Retirement Plan, and an Employee Stock Purchase plan. Our educational plan comprises access to more than 2,000 web-based technical, professional and business development courses.

CTG is a leading provider of digital transformation solutions and services that accelerate clients' project momentum and achievement of their desired IT and business outcomes. Our vision is to be an indispensable partner to our clients and the preferred career destination for digital and technology experts. CTG has operations in North America, South America, Western Europe, and India. For more information, visit www.ctg.com.

Our culture is a direct result of the people who work at CTG, the values we hold, and the actions we take. In other words, our people are the culture. It's a living, breathing thing that is renewed every day through the ways we engage with each other, our clients, and our communities. Part of our mission is to cultivate a workplace that attracts and develops the best people, reflected by our recognition as a Great Place to Work-certified company across many of our

global operations.

CTG will consider for employment all qualified applicants including those with criminal histories in a manner consistent with the requirements of all applicable local, state, and federal laws.

CTG is an Equal Opportunity and Affirmative Action Employer. CTG will assure equal opportunity and consideration to all applicants and employees in recruitment, selection, placement, training, benefits, compensation, promotion, transfer, and release of individuals without regard to race, creed, religion, color, national origin, sex, sexual orientation, gender identity and gender expression, age, disability, marital or veteran status, citizenship status, or any other discriminatory factors as required by law. Our Affirmative Action program serves to promote occupational equality and diversity through good faith efforts. CTG is fully committed to promoting employment opportunities for members of protected classes.

Additional Information
• Job Function: Data Science & Analysis
• Education Level: Bachelor's Degree (±16 years)
• Work Remote: Yes
• Travel: No

DATA SCIENTIST

DEPARTMENT OF THE NAVY

Military Sealift Command

COVID-19 Vaccination Requirement

The COVID-19 vaccination requirement for federal employees pursuant to Executive Order 14043 does not currently apply. Some jobs, however, may be subject to agency- or job-specific vaccination requirements, so please review the job announcement for details. Click here for more information.

Summary

This is a public notice flyer to notify interested applicants of anticipated vacancies. Applications will not be accepted through this flyer. Interested applicants must follow the directions in the "How to Apply" section of this flyer to be considered. There may or may not be actual vacancies filled from this flyer. Notice of Result letters will not be sent to applicants who respond to this flyer.

Learn more about this agency

Overview

Help

Accepting applications

Open & closing dates

08/29/2022 to 09/16/2022

Salary

$55,188 - $86,800 per year

Pay scale & grade
GS 9 - 11

Help

Location

1 vacancy in the following location:

Naval Base, Norfolk, VA
1 vacancy

Remote job
No

Telework eligible
Yes—as determined by the agency policy.

Travel Required
Occasional travel - You may be expected to travel for this position.

Relocation expenses reimbursed
No

Appointment type
Permanent -

Work schedule
Full-time -

Service
Competitive

Promotion potential
13

Job family (Series)
1501 General Mathematics And Statistics

Supervisory status
No

Security clearance
Secret

Drug test

No

Announcement number
DE-11628191-22-EAM

Control number
673879300

This job is open to

Help

The public
U.S. Citizens, Nationals or those who owe allegiance to the U.S.

Clarification from the agency

U.S. Citizens

Duties

Help

- You will serve as a DATA SCIENTIST in the KNOWLEDGE MANAGEMENT DIVISION (N93) of MILITARY SEALIFT COMMAND.
- You will serve as the focal point for corporate management, knowledge management, continuous improvement and budgetary planning and programming.
- You will provide expertise as a Data Scientist for applying statistical analysis.
- You will conduct studies and analysis using data science techniques.
- You will support senior level decision makers.

Requirements

Help

Conditions of Employment

- Must be a US Citizen.
- Must be determined suitable for federal employment.
- Must participate in the direct deposit pay program.
- New employees to the Department of the Navy will be required to successfully pass the E-Verify employment verification check. To learn more about E-Verify, including your rights and responsibilities, visit e-verify.gov

- Within the Department of Defense (DoD), the appointment of retired military members within 180 days immediately following retirement date to a civilian position is subject to the provisions of 5 United States Code 3326.
- Males born after 12-31-59 must be registered for Selective Service.
- Per the preliminary nationwide injunction on E.O. 14043, COVID-19 vaccinations will not be implemented or enforced. For more information on vaccine status and workplace safety protocol requirements see Additional Information below.
- You will be required to obtain and maintain an interim and/or final Secret security clearance prior to entrance on duty. Failure to obtain and maintain the required level of clearance may result in the withdrawal of a job offer or removal
- This position may require travel from normal duty station to CONUS and OCONUS and may include remote or isolated sites. You must be able to travel on military and commercial aircraft for extended periods of time.

Qualifications

For GS-11:
In addition to the Basic Requirement (see Education), your resume must demonstrate at least one year of specialized experience at or equivalent to the GS-09 grade level or pay band in the Federal service or equivalent experience in the private or public sector. Specialized experience must demonstrate the following:
- Conducting Machine Learning Algorithms as well as extracting/transforming Big Data for the Development of Deep Learning algorithms.
- Developing and supporting analytics solutions to address questions.
- Applying broad professional knowledge in the areas of operations research, modeling and simulation, data science, or computer science sufficient to service as a consultant and/or technical advisor to senior subject matter specialist or management officials.
- Providing training on statistical and data science tools such as Databricks, RStudio, Python Jupiter/Anaconda notebooks, and Knime to analyze data and develop solutions to business problems.
- Proficiency in one or more programming languages such as Java, C++, Visual Basic, SQL.

For GS-09:
In addition to the Basic Requirement (see Education), your resume must demonstrate at least one year of specialized experience at or equivalent to the GS-07 grade level or pay band in the Federal service or equivalent experience in the private or public sector. Specialized experience must demonstrate the following:
- Assisting with building statistical models, applying machine learning techniques for targeted solutions for effective communication.
- Developing findings through interactive visualizations, documents and presentations.
- Creating automated anomaly detection systems and constant tracking.

- Enhancing data collection procedures to include information to build analytic systems.
- Proficiency in one or more programming languages such as Java, C++, Visual Basic, SQL.

Additional qualification information can be found from the following Office of Personnel Management website: https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/general-mathematics-and-statistics-series-1501star/

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., professional, philanthropic, religious, spiritual, community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment.

Education

Basic Requirements for all grades:

1. Degree: Mathematics, statistics, or actuarial science. The degree must be in a major field of study (at least at the baccalaureate level) that is appropriate for the position.

   or

2. Combination of education and experience: Courses equivalent to a major field of study as shown in paragraph A above, plus additional education or appropriate experience.

In leu of specialized experience you may also qualify based on level of your educations (Transcripts must be provided):

For GS-11: Successful completion of 3 years of progressively higher level graduate education leading to a Ph.D. degree OR Ph.D. or equivalent doctoral degree.

For GS-09: Successful completions of 2 years of progressively higher level graduate education leading to a master's degree OR master's or equivalent graduate degree.

Additional information

Read more

Benefits

How You Will Be Evaluated

You will be evaluated for this job based on how well you meet the qualifications above.

In order to qualify for this position, your resume must provide sufficient experience and/or education, knowledge, skills, and abilities to perform the duties of the specific position for which you are being considered. Your resume is the key means we have for evaluating your skills, knowledge, and abilities as they relate to this position. Therefore, we encourage you to be clear and specific when describing your experience.

As vacancies occur, the Human Resources Office will review your resume to ensure you meet the hiring eligibility and qualification requirements listed in this flyer. You will be rated based on the information provided in your resume, along with your supporting documentation.

If selected, you may be required to provide additional supporting documentation.

If after reviewing your resume and supporting documentation, a determination is made that you inflated your qualifications and/or experience, you may be found ineligible/not qualified.

Please follow all instructions carefully. Errors or omissions may affect your rating or consideration for employment.

All qualification requirements must be met before being considered for any vacancies.

Benefits

Required Documents

How to Apply

Fair and Transparent

Required Documents

Help

A complete resume is required. Your resume must show relevant experience, job title, duties and accomplishments. Your resume must show complete information for each job entry to support minimum qualifications. The following information should be provided in your resume, but it is acceptable to provide elsewhere in your application package: employer's name, starting and end dates (Mo/Yr), hours per week, and pay plan, series and grade level (e.g. GS-0201-09) for relevant federal experience.TIP: A good way to ensure you include all essential information is to use the Resume Builder in USAJOBS to create your resume.

Are you claiming membership in any professional organizations, or possession of a license, certificate or credentials? Check the **Conditions of Employment** section above to see if any are required. If you claim membership, license, certification, or credentials, you must submit a copy of said document in your application package.

Are you using education as a substitute for some or all of the experience requirement? Is there a basic education requirement for this position? Check the **Education** section above to see what is allowed and what is required. Any claims you make in your resume or assessment questionnaire regarding education or degrees MUST be supported by submitting with your application official or unofficial transcripts or a list of courses, grades earned, completion dates, and quarter and semester hours earned issued from your school. While unofficial transcripts are acceptable for initial application, an official transcript will ultimately be required if you are selected for the position. You may submit a copy your degree(s) if specific coursework does not have to be verified.

Are you a veteran claiming 5-point veterans' preference or **claiming sole survivorship preference?** You must submit a copy of your latest DD-214 Certificate of Release or Discharge from Active Duty (any copy that shows all dates of service, as well as character of service [Honorable, General, etc.] is acceptable) OR a VA letter that shows dates of service or service connected disability AND character of service. If you have more than one DD-214 for multiple periods of active duty service, submit a copy for each period of service. If you were issued a DD-215 to amend aforementioned information on the DD-214 you must submit that too. If you are not sure of your preference eligibility, visit the Department of Labor's website: Veterans' Preference Advisor

Are you a disabled veteran or claiming 10-point veterans' preference?
If you are eligible to claim 10 point veterans preference you must submit a DD-214 Certificate of Release or Discharge from Active Duty as described above for 5-point preference.

You must also provide the applicable supporting documentation of your disability (e.g. disability letter from the VA) as described on Standard Form-15 (SF-15). http://www.opm.gov/forms/pdf_fill/SF15.pdf.

Are you an active duty service member? Active Duty Service Members are required to submit a statement of service printed on command letterhead and signed by the command. The statement of service must provide the branch of service, rate/rank, all dates of service, the expected date of discharge and anticipated character of service (Honorable, General, etc.).

Documents submitted as part of the application package, to include supplemental documents, may be shared beyond the Human Resources Office. Some supplemental documents contain personal information such as SSN and DOB and some documents such as military orders and marriage certificates may contain personal information for someone other than you. You may sanitize these documents to remove said personal information before you submit your application. You must provide an un-sanitized version of the documents if you are selected.

If you are relying on your education to meet qualification requirements:

Education must be accredited by an accrediting institution recognized by the U.S. Department of Education in order for it to be credited towards qualifications. Therefore, provide only the attendance and/or degrees from schools accredited by accrediting institutions recognized by the U.S. Department of Education.

Failure to provide all of the required information as stated in this vacancy announcement may result in an ineligible rating or may affect the overall rating.

How to Apply

Help

Read more

Agency contact information

Christopher Trimpey

Phone

(757) 341-3433

Email

chris.trimpey@navy.mil

Address

MILITARY SEALIFT COMMAND
471 East C Street
Norfolk, 23511
GB

Learn more about this agency

Next steps

Read more

Fair & Transparent

The Federal hiring process is set up to be fair and transparent. Please read the following guidance.

Equal Employment Opportunity (EEO) Policy
Reasonable accommodation policy
Financial suitability
Selective Service
New employee probationary period
Signature and false statements
Privacy Act
Social security number request

Print

Share Save

Help

Accepting applications

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Permanent -

Work schedule
Full-time -

Service
Competitive

Promotion potential
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Drug test
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Announcement number
DE-11628191-22-EAM

Control number
673879300

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Help center

About USAJOBS

FAQs

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Get started

How to…

Working in government

USAJOBS is a United States Office of Personnel Management website.

EEO Policy Statement

Reasonable Accommodation Policy Statement

Veterans Information

Legal and Regulatory Guidance

Terms and Conditions

Budget and Performance

FOIA

Inspector General

No Fear Act Data

Privacy Policy

USA.gov

Data Scientist, Lead - 39092

SAVE

Huntington Ingalls Industries
Norfolk, VA

Apply on Monster

Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- Candidate should have a strong working knowledge and experience developing cloud software-based capabilities and data science related expertise including machine learning or artificial intelligence
- Candidate should have an inquisitive nature, responsiveness, and excellent testing skills
- Must also possess strong troubleshooting skills and the ability to work under pressure with multiple deadlines
- Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience
- At least 3 years of experience as a data scientist
- Educational requirements may be adjusted for applicable work experience
- Work experience may be adjusted for highly specialized

Responsibilities

- In this role, you will work with on a suite of warfighter simulation systems called the Navy Training Baseline (NTB)
- to enhance and develop new capabilities for futuristic products
- Will work in a fast paced, business environment with our talented team
- Work across functional teams to identify data capture and analysis requirements
- Implement a big data architecture onto NCTE
- Design and build analysis capabilities into the architecture
- Collaborate with software engineers on a data-driven predictive maintenance tool
- Keep up-to-date on current technologies and applications of big data architectures
- Identify opportunities use cases for supervised and unsupervised learning to expand the use of

knowledge or uniquely applicable experience

- Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms
- Experience with Python, R, or other data science related tools
- Experience querying data from SQL databases
- Experience with machine learning, artificial intelligence, neural networks (e.g
- Experience with the Linux operating system
- Experience with configuration management tools (e.g
- Git, Nexus, Maven)
- Experience with the agile software lifecycle
- Experience with anomaly detection, time series forecasting, and predictive maintenance
- Has a proven ability to learn quickly and works well both independently as well as in a team setting
- Kafka, Spark, Flink, Storm, MapReduce, Hadoop)
- Experience implementing a distributed storage system such as HDFS, HBASE etc
- Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines
- Must be able to obtain and maintain a Secret clearance
- US Citizenship is required

the big data architecture within NCTE

- As needed deliver KPIs and automated reporting to teams supporting the NCTE

Full description

+ Employee Type:

Full-Time

+ Location:

Norfolk, VA

+ Job Type:

Management

+ Experience:

Not Specified

+ Date Posted:

3/14/2022

+ Job ID:

39092

+ Telework

Telework - Not Eligible

Job Description

Alion HII-TSD has been providing modeling and simulation software to the Navy Service Program for over 20 years, and the exciting work we do for this customer keeps growing with new and continued demand for our state-of-the-art modeling and simulation software that allows Navy sailors to simulate actual warfare scenarios. The demands for Artificial Intelligence, Machine Learning, and sophisticated Cloud technologies requires that we rise to the challenge to meet the need for years to come. Come be part of this challenging, exciting software development opportunity! Read on for more details:

The Data Scientist is responsible for the data analytics and processing, user interface, utilities, and data modeling to meet Huntington Ingalls Industries research and development objectives. In this role, you will work with on a suite of warfighter simulation systems called the Navy Training Baseline (NTB) to enhance and develop new capabilities for futuristic products. The Data Scientist on the Software Development team provides modeling and simulation application development, live, virtual and constructive systems integration support, in-service engineering support, and data analytics to US Fleet Forces (USFF) and the Number Fleets. The Software Development team is directly responsible, in this context, for developing and maintaining technical solutions and standards to provide the greatest level of training capability to the warfighter, at the lowest possible cost, at the fastest pace achievable.

Candidate should have a strong working knowledge and experience developing cloud software-based capabilities and

data science related expertise including machine learning or artificial intelligence. Candidate should have an inquisitive nature, responsiveness, and excellent testing skills. Must also possess strong troubleshooting skills and the ability to work under pressure with multiple deadlines. Will work in a fast paced, business environment with our talented team.

Duties:

• Work across functional teams to identify data capture and analysis requirements.

• Implement a big data architecture onto NCTE.

• Design and build analysis capabilities into the architecture

• Collaborate with software engineers on a data-driven predictive maintenance tool

• Keep up-to-date on current technologies and applications of big data architectures

• Identify opportunities use cases for supervised and unsupervised learning to expand the use of the big data architecture within NCTE

• As needed deliver KPIs and automated reporting to teams supporting the NCTE

Required Skills:

• Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience

• At least 3 years of experience as a data scientist

• Educational requirements may be adjusted for applicable work experience. Work experience may be adjusted for highly specialized knowledge or uniquely applicable experience.

• Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms

• Experience with Python, R, or other data science related tools

• Experience querying data from SQL databases

• Experience with machine learning, artificial intelligence, neural networks (e.g. Tensorflow)

• Experience with the Linux operating system

• Experience with configuration management tools (e.g. Git, Nexus, Maven)

• Experience with the agile software lifecycle

• Experience with anomaly detection, time series forecasting, and predictive maintenance

• Has a proven ability to learn quickly and works well both independently as well as in a team setting

Desired Skills:

• Experience rapidly scaling data storage and processing

• Experience with causal analysis methods for root cause analysis

• Experience in Modern Java Frameworks and Libraries (e.g. Spring, Guava)

• Experience with data visualization

• Experience with web frontend frameworks (e.g. React) and accessing REST APIs

• Experience in distributed databases, NoSQL, or Graph databases (e.g.Neo4j or MongoDB) a high plus

• Experience in streaming and/or batch analytics (e.g. Kafka, Spark, Flink, Storm, MapReduce, Hadoop)

• Experience implementing a distributed storage system such as HDFS, HBASE etc.

• Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines

Must be able to obtain and maintain a Secret clearance. US Citizenship is required.
• cj

Security Clearance: None

Telework - Not Eligible

Diversity Statement

We are an EOE that values our employee’s talent – regardless of gender, race, ethnicity, national origin, sexual orientation, religion or other protected characteristics –Your Talent Is Our Strength.

Women, minorities, individuals with disabilities and Veterans are encouraged to apply. Alion will provide a reasonable accommodation to individuals with disabilities and disabled veterans who need assistance to apply. Please visit the Alion Careers site for more information. U.S. Citizenship Required for the majority of our positions.

Covid Notice

Federal Executive Order 14042 requires that covered contractor employees who work on, or in connection with, covered Federal contracts or at covered contractor workplaces may be required to be fully vaccinated for COVID-19 and comply with other requirements. Covered contractor employees also must comply with agency COVID-19 workplace safety requirements while in Federal workplaces. Applicant agrees to comply with said requirements to the extent they apply to the applied-for positio

Data Scientist

SAVE

Booz Allen Hamilton
Norfolk, VA

Apply on Booz Allen Hamil… Apply on LinkedIn Apply on Adzuna Apply on Talent.com Apply on

Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- 6+ years of experience with scripting and scientific languages, including Python, R, C++, or Java
- 6+years of experience with tools to manage data and databases including Microsoft Excel, Access, SharePoint, or SQL
- 6+ years of experience with data collection, data processing, data visualization, data analytics, and data science approaches and tools
- Knowledge of statistical measures, including confidence intervals and the significance of error measurements, mathematical modeling techniques, optimization approaches, or machine learning algorithm development
- Ability to obtain a security clearance
- BA or BS degree
- 6+ years of experience with applying machine learning techniques and the key parameters that affect their performance

Responsibilities

- You'll work closely with your customer to understand their questions and needs, and then dig into their data-rich environment to find the pieces of their information puzzle
- You'll develop data collection tools, data visualizations and dashboard, algorithms/scripts to process data or conduct predictive analytics leveraging machine learning or other approaches
- and use the right combination of tools and frameworks to turn that set of disparate data points into objective answers to help Air Force leaders make informed decisions
- You'll provide your customer with a deep understanding of their data, what it all means, and how they can use it

- 6+ years of experience with Big Data programming technologies, including Hadoop, Spark, R, or Hive
- 6+ years of experience in working with a wide range of predictive and decision models and tools for developing models
- Experience with using statistical software applications, including SAS, R, MATLAB, SPSS, or Stata
- Experience with developing statistical and simulation models
- Experience in natural language processing topics, including tagging, syntactic parsing, word sense disambiguation, topic modeling, contextual text mining, and application of deep learning to NLP
- Experience with developing experimental and analytic plans for data modeling processes, using strong baselines, and determining cause and effect relationships accurately
- Secret clearance
- MA or MS degree

Full description

Data Scientist

The Challenge

Are you excited at the prospect of unlocking the secrets held by a data set? Are you fascinated by the possibilities presented by the IoT, machine learning, and artificial intelligence advances? In an increasingly connected world, massive amounts of structured and unstructured data open up new opportunities. As a data scientist, you can turn these complex data sets into useful information to solve global challenges. Across private and public sectors — from fraud detection, to cancer research, to national intelligence — you know the answers are in the data.

We have an opportunity for you to use your analytical skills to improve Air Force mission solutions. You'll work closely with your customer to understand their questions and needs, and then dig into their data-rich environment to find the pieces of their information puzzle. You'll develop data collection tools, data visualizations and dashboard,

algorithms/scripts to process data or conduct predictive analytics leveraging machine learning or other approaches. and use the right combination of tools and frameworks to turn that set of disparate data points into objective answers to help Air Force leaders make informed decisions. You'll provide your customer with a deep understanding of their data, what it all means, and how they can use it. Join us as we use data science for good in aerospace mission solutions. This position is a hybrid role with a combination of working at a Booz Allen office or client site and working remotely.

Empower change with us.

You Have:
• 6+ years of experience with scripting and scientific languages, including Python, R, C++, or Java
• 6+years of experience with tools to manage data and databases including Microsoft Excel, Access, SharePoint, or SQL
• 6+ years of experience with data collection, data processing, data visualization, data analytics, and data science approaches and tools
• Knowledge of statistical measures, including confidence intervals and the significance of error measurements, mathematical modeling techniques, optimization approaches, or machine learning algorithm development
• Ability to obtain a security clearance
• BA or BS degree

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• Experience with developing statistical and simulation models
• Experience in natural language processing topics, including tagging, syntactic parsing, word sense disambiguation, topic modeling, contextual text mining, and application of deep learning to NLP
• Experience with developing experimental and analytic plans for data modeling processes, using strong baselines, and determining cause and effect relationships accurately
• Secret clearance
• MA or MS degree

Clearance:

Applicants selected will be subject to a security investigation and may need to meet eligibility requirements for access to classified information.

Build Your Career:

At Booz Allen, we know the power of analytics and we're dedicated to helping you grow as a data analysis professional. When you join Booz Allen, you'll have the chance to:
• access online and onsite training in data analysis and presentation methodologies, and tools like Hortonworks, Docker, Tableau, and Splunk
• change the world with the Data Science Bowl—the world's premier data science for social good competition
• participate in partnerships with data science leaders, like our partnership with NVIDIA to deliver Deep Learning

Institute (DLI) training to the federal government

You'll have access to a wealth of training resources through our Analytics University, an online learning portal specifically geared towards data science and analytics skills, where you can access more than 5000 functional and technical courses, certifications, and books. Build your technical skills through hands-on training on the latest tools and state-of-the-art tech from our in-house experts. Pursuing certifications that directly impact your role? You may be able to take advantage of our tuition assistance, on-site bootcamps, certification training, academic programs, vendor relationships, and a network of professionals who can give you helpful tips. We'll help you develop the career you want as you chart your own course for success.

We're an equal employment opportunity/affirmative action employer that empowers our people to fearlessly drive change – no matter their race, color, ethnicity, religion, sex (including pregnancy, childbirth, lactation, or related medical conditions), national origin, ancestry, age, marital status, sexual orientation, gender identity and expression, disability, veteran status, military or uniformed service member status, genetic information, or any other status protected by applicable federal, state, local, or international law

Python Data Scientist

SAVE

Latitude, Inc.
Norfolk, VA

Apply on Monster | Apply on LinkedIn | Apply directly on ZipRecruiter | Apply on Ladders | Apply on Tarta

Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- â€¢ Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience
- â€¢ At least 3 years of experience as a data scientist
- â€¢ Educational requirements may be adjusted for applicable work experience
- Work experience may be adjusted for highly specialized knowledge or uniquely applicable experience
- â€¢ Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms
- â€¢ Experience with Python, R, or other data science related tools
- â€¢ Experience querying data from SQL databases
- â€¢ Experience with machine learning, artificial intelligence, neural networks (e.g
- â€¢ Experience with the Linux operating system

Responsibilities

- â€¢ Work across functional teams to identify data capture and analysis requirements
- â€¢ Implement a big data architecture onto NCTE
- â€¢ Design and build analysis capabilities into the architecture
- â€¢ Identify opportunities use cases for supervised and unsupervised learning to expand the use of the big data architecture within NCTE
- â€¢ As needed deliver KPIs and automated reporting to teams supporting the NCTE

- â€¢ Experience with configuration management tools (e.g
- Git, Nexus, Maven)
- â€¢ Experience with the agile software lifecycle
- â€¢ Experience with anomaly detection, time series forecasting, and predictive maintenance
- â€¢ Has a proven ability to learn quickly and works well both independently as well as in a team setting
- â€¢ Experience rapidly scaling data storage and processing
- â€¢ Experience with causal analysis methods for root cause analysis
- â€¢ Experience in Modern Java Frameworks and Libraries (e.g. Spring, Guava)
- â€¢ Experience with data visualization
- â€¢ Experience with web frontend frameworks (e.g. React) and accessing REST APIs
- â€¢ Experience in distributed databases, NoSQL, or Graph databases (e.g.Neo4j or MongoDB) a high plus
- â€¢ Experience in streaming and/or batch analytics (e.g
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- â€¢ Experience implementing a distributed storage system such as HDFS, HBASE etc
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- Must be able to obtain and maintain a Secret clearance
- US Citizenship is required

Full description

Duties:

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â€¢ Has a proven ability to learn quickly and works well both independently as well as in a team setting

Desired Skills:

â€¢ Experience rapidly scaling data storage and processing
â€¢ Experience with causal analysis methods for root cause analysis
â€¢ Experience in Modern Java Frameworks and Libraries (e.g. Spring, Guava)
â€¢ Experience with data visualization
â€¢ Experience with web frontend frameworks (e.g. React) and accessing REST APIs
â€¢ Experience in distributed databases, NoSQL, or Graph databases (e.g.Neo4j or MongoDB) a high plus
â€¢ Experience in streaming and/or batch analytics (e.g. Kafka, Spark, Flink, Storm, MapReduce, Hadoop)
â€¢ Experience implementing a distributed storage system such as HDFS, HBASE etc.
â€¢ Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines

Must be able to obtain and maintain a Secret clearance. US Citizenship is required

Data Scientist / Data Analytics

SAVE

S

SkyePoint Decisions
Virginia Beach, VA

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4 days ago | Full-time | Health insurance | Dental insurance

Job highlights

Identified by Google from the original job post

Qualifications

- Bachelor's Degree and a minimum of 5 year experience required
- An additional 4 years of experience may be substituted in lieu of degree
- Possess CND, CySA+, GSEC, Security+ CE, CEH, CISSP, CASP+ or similar certification
- Demonstrated experience providing analytics solutions to detect anomalous activity
- Proven working experience as a data scientist or analyst
- Technical expertise regarding data models, database design development, data mining and segmentation techniques
- Experience writing scripts using Python or similar languages
- Applicants selected for this position will require an active Top Secret clearance, and background screening

Responsibilities

- This role may require on-site support of at least 2-3 days week
- This is a contingent position based upon customer approval and funding
- You will work with a team of like-minded professionals to share and collaborate upon your ideas to improve the cybersecurity infrastructure, architecture, and configuration deployments
- You will become part of SkyePoint's Department of State (DoS) Diplomatic Security Cyber Mission (DSCM) program providing leading cyber and technology security experience to enable innovative, effective and secure business processes
- Create, maintain, and refine data models and algorithms used across the Directorate
- Improve visibility and focus of large data sets to improve anomaly detection

- Identify new security monitoring use cases based on available data
- Implement and support user and threat behavior analytics
- Create cyber threat intelligence conclusions by using data science and analysis (e.g. outlier detection, gap analysis, normalization, machine learning, automated models, natural language processing, etc.) techniques

Benefits

- Great Benefits: >70%-80% of medical premiums cost share paid by SkyePoint, several insurance options including HMO and High Deductible plans with Health Savings Accounts HSAs , Flex Spending Accounts FSAs , Full Dental Plans, ST/LT Disability, Life Insurance, floating federal holiday options, and 401k matched
- Certification Incentive Program
- Paid Referral Program
- Corporate Sponsored Community Engagement (Giving Back) events every quarter
- SkyePoint DoD SkillBridge Industry Partner Fellowship Program
- SkyePoint Professional Growth Programs (Internal Training and Mentoring)
- SkyePoint Professional Sports Ticket Perks, Quarterly Employee Morale Lunches, and Semi-Annual team-building events
- Flexible Work Environment

Full description

Overview

SkyePoint Decisions is a leading Cybersecurity Architecture and Engineering, Critical Infrastructure and Operations, and Applications Development and Maintenance IT service provider headquartered in Dulles, Virginia with operations across the U.S. We provide innovative enterprise-wide solutions as well as targeted services addressing the complex challenges faced by our federal government clients. Our focus is on enabling our clients to deliver their mission most efficiently and effectively - anytime, anywhere, securely. We combine technical expertise, mission awareness, and an empowered workforce to produce meaningful results. This role may require on-site support of at least 2-3 days week.

Responsibilities

This is a contingent position based upon customer approval and funding.

As a SkyePoint employee you will be given the opportunity to support some of our nation's most critical information systems by utilizing not only your existing cybersecurity skills and talents, but those that you will learn in your new role. In your new role as a cyber security professional, you will protect our customer's most sensitive data and complex systems from all forms of threats including cyber-attacks, insider threats, rogue network devices, and malicious software and applications. You will work with a team of like-minded professionals to share and collaborate upon your ideas to improve the cybersecurity infrastructure, architecture, and configuration deployments. Your ideas and contributions will matter.

What can you achieve and how you will make a difference
• You will become part of SkyePoint's Department of State (DoS) Diplomatic Security Cyber Mission (DSCM) program providing leading cyber and technology security experience to enable innovative, effective and secure business processes.
• Create, maintain, and refine data models and algorithms used across the Directorate.
• Improve visibility and focus of large data sets to improve anomaly detection.
• Identify new security monitoring use cases based on available data.
• Implement and support user and threat behavior analytics.
• Create cyber threat intelligence conclusions by using data science and analysis (e.g. outlier detection, gap analysis, normalization, machine learning, automated models, natural language processing, etc.) techniques.

Qualifications

The Talent You Bring with these Qualifications
• Bachelor's Degree and a minimum of 5 year experience required. An additional 4 years of experience may be substituted in lieu of degree.
• Active Top Secret security clearance is required.
• Possess CND, CySA+, GSEC, Security+ CE, CEH, CISSP, CASP+ or similar certification.
• Demonstrated experience providing analytics solutions to detect anomalous activity.
• Proven working experience as a data scientist or analyst.
• Technical expertise regarding data models, database design development, data mining and segmentation techniques.
• Experience writing scripts using Python or similar languages.
Applicants selected for this position will require an active Top Secret clearance, and background screening. Applicants

selected for a security clearance will be subject to a security investigation and must meet eligibility requirement for access to classified information.

What We Can Offer You -
• Great Benefits: >70%-80% of medical premiums cost share paid by SkyePoint, several insurance options including HMO and High Deductible plans with Health Savings Accounts HSAs , Flex Spending Accounts FSAs , Full Dental Plans, ST/LT Disability, Life Insurance, floating federal holiday options, and 401k matched
• Certification Incentive Program
• Paid Referral Program
• Corporate Sponsored Community Engagement (Giving Back) events every quarter
• SkyePoint DoD SkillBridge Industry Partner Fellowship Program
• SkyePoint Professional Growth Programs (Internal Training and Mentoring)
• SkyePoint Azure Development Environment available to all Developers and technical staff to develop solutions for customers and/or to create innovation to win new business
• SkyePoint Professional Sports Ticket Perks, Quarterly Employee Morale Lunches, and Semi-Annual team-building events
• Flexible Work Environment
SkyePoint Decisions is an established ISO 9001:2015 and ISO/IEC 27001:2013 certified small business and appraised at CMMI Level 3 (with SAM) for Services. We possess a common vision of excellence and foster a collaborative team culture built upon individual performance and accountability. We invest in our people and systems to create value for our clients. It is the SkyePoint Way. We are grateful for the opportunity to work with exceptional people and give back to the communities we serve. Our employees value the flexibility at SkyePoint that allows them to balance quality work and their personal lives.

As a federal contractor, SkyePoint is subject to any federal vaccine mandates or other customer vaccination requirements. All new hires are required to report their vaccination status.

SkyePoint Decisions is committed to hiring and retaining a diverse workforce. We are an Equal Opportunity Employer, making decisions without regard to race, color, religion, sex, national origin, age, veteran status, disability, or any other protected class. U.S. Citizenship is required for most positions

Data Analyst

SAVE

BigBear.ai, Inc.
Norfolk, VA

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$ 80K–100K a year Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- Bachelor's degree in Computer Science, Engineering, or similar technical field or equivalent experience
- Minimum 3+ years of experience with relational database/data analytics
- Familiarity with SQL, Microsoft SQL Server, Databricks, Python (or similar)
- Proficiency with MS Access and Excel
- Clearance: Must possess and maintain an active Secret security clearance
- Active Top Secret Clearance with SCI eligibility
- Experience working in Department of Defense programs
- Experience with Global Force Management processes and programs
- Current experience with GFM applications (DRRS, JOPES, JCRM, ORION)
- CompTIA Security+ certification

Responsibilities

- We are looking for a Data Analyst to help us continue and expand the delivery of high-quality, timely functionality to our government customers
- You will be integral in the aggregation, correlation and analysis of large and complex data sets from various DoD sources
- Collaborate with team members to collect and analyze data
- Structure large data sets to find usable information
- Use graphs, infographics and other methods to visualize data
- Create reports for internal teams and/or external clients
- Work with a team of analysts and other associates to process information
- Perform analysis to assess the quality of the data and screening options
- Process data and information according to strict compliance directives

- A high level of mathematical ability
- Experience leveraging methodologies and processes for managing large-scale databases with strict metadata standards
- Demonstrated experience in handling large data sets and relational databases
- Ability to analyze, model, and interpret data
- Possess a methodical and logical approach to solving problems
- Experience with shifting priorities and meeting deadlines
- Accuracy and attention to detail
- Demonstrated competency with written and verbal communication skills
- About BigBear.ai
- Perform data administration, operations support, Tier 2 and internal customer support

Full description

Job Description

Overview

BigBear.AI has an exciting opportunity for a Data Analyst to join our talented and agile team of forward-thinking engineers, software developers, analysts, and innovators.

Due to the requirement for active, on-site customer engagement and the sensitive nature of our data and applications the work location for this role is in Norfolk, Virginia.

BigBear.AI is one of the fastest growing AI/ML companies in the industry and at the nexus of technology-driven decision support application development supporting the Department of Defense (DoD). Our team relies on Subject Matter Expertise (SME), user community engagement, sensitivity to operations, and world-class software development to deliver a rich, immersive experience that helps our government customers effortlessly gain insights into complex problems, rapidly run scenarios, and make sense of disparate and large datasets being generated across the DoD.

What you will do

We are looking for a Data Analyst to help us continue and expand the delivery of high-quality, timely functionality to our

government customers. You will be integral in the aggregation, correlation and analysis of large and complex data sets from various DoD sources. You will have the opportunity to rapidly learn and influence strategic decisions as you become a Global Force Management (GFM) data SME under the guidance of our Senior Data Scientist. This is an excellent opportunity to get in on the ground floor as we migrate to the cloud environment and capitalize on strategic partnerships that will catapult the program to new heights.

• Collaborate with team members to collect and analyze data
• Structure large data sets to find usable information
• Use graphs, infographics and other methods to visualize data
• Create reports for internal teams and/or external clients
• Work with a team of analysts and other associates to process information
• Perform analysis to assess the quality of the data and screening options
• Process data and information according to strict compliance directives
• Perform data administration, operations support, Tier 2 and internal customer support

What you need to have

• Bachelor's degree in Computer Science, Engineering, or similar technical field or equivalent experience
• Minimum 3+ years of experience with relational database/data analytics
• Familiarity with SQL, Microsoft SQL Server, Databricks, Python (or similar)
• Proficiency with MS Access and Excel
• Clearance: Must possess and maintain an active Secret security clearance

What we'd like you to have

• Active Top Secret Clearance with SCI eligibility
• Experience working in Department of Defense programs
• Experience with Global Force Management processes and programs
• Current experience with GFM applications (DRRS, JOPES, JCRM, ORION)
• CompTIA Security+ certification
• A high level of mathematical ability
• Experience leveraging methodologies and processes for managing large-scale databases with strict metadata standards
• Demonstrated experience in handling large data sets and relational databases
• Ability to analyze, model, and interpret data
• Possess a methodical and logical approach to solving problems
• Experience with shifting priorities and meeting deadlines
• Accuracy and attention to detail
• Demonstrated competency with written and verbal communication skills

About BigBear.ai

A leader in decision dominance for more than 20 years, BigBear.ai operationalizes artificial intelligence and machine learning at scale through its end-to-end data analytics platform. The Company uses its proprietary AI/ML technology to support its customers' decision-making processes and deliver practical solutions that work in complex, realistic and imperfect data environments. BigBear.ai's composable AI-powered platform solutions work together as often as they stand alone: Observe (data ingestion and conflation), Orient (composable machine learning at scale), and Dominate (visual anticipatory intelligence and optimization).

BigBear.ai's customers, which include the U.S. Intelligence Community, Department of Defense, the U.S. Federal

Government, as well as customers in the commercial sector, rely on BigBear.ai's high value software products and technology to analyze information, identify and manage risk, and support mission critical decision making. Headquartered in Columbia, Maryland, BigBear.ai has additional locations in Virginia, Massachusetts, Michigan, and California.

BigBear.ai will request COVID-19 vaccination status information as part of the onboarding process

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Description of Proposed Program

Program Background

Old Dominion University (ODU) in Norfolk, Virginia seeks approval for Bachelor of Science (BS) degree in Data Science. The proposed program will reside in ODU's new School of Data Science. The target date of the proposed program's initiation is Fall 2023.

The purpose of the BS in Data Science program is to provide students foundational knowledge in the core competency areas of data science. The proposed program will provide skills in computer science, mathematics and statistics, and data analytics. Students will learn to use data for identifying trends and patterns, solving problems, communicating results, and recommending solutions. Additionally, it will provide opportunities for students to practice these skills across application areas from different domains. The program will provide project-based learning and students will discover how to use data to solve real-world problems. Graduates will be knowledgeable and skilled at developing statistical models to detect trends and lead teams in organizing, managing, and modeling data. The program will prepare graduates to work in public or private settings that require data-driven solutions to gain insights, make decisions, and communicate solutions.

The proposed BS in Data Science will offer three concentrations initially. The concentrations will prepare students to focus on different aspects of data science and gain deeper knowledge in these sub-areas. Students who choose the artificial intelligence and machine learning concentration will take courses that address topics such as object-oriented programming, algorithms and data structures, and information retrieval. Students will learn computational data analysis and natural language processing. Graduates who choose this concentration will be prepared to enter rapidly emerging science and statistical fields. Students who choose the visualization concentration will take courses in data visualization, data structures**,** and computer graphics. Students will gain skills for data modeling, simulation, and rendering results. Graduates of this concentration will be prepared to select and apply appropriate techniques for data visualization to support analyses from different domains. Finally, students who choose the geospatial analysis concentration will take courses in geographic information systems, spatial analysis, and remote sensing. The concentration provides the skills for spatial predictive modeling, geostatistics, and object detection. Graduates from this concentration will be prepared to uncover spatial patterns to enhance cartography analytics and communications.

The increased amount of available data has escalated the demand for data science professionals. As data science continues to grow, more and more colleges and universities are working to equip undergraduate and graduate students with the skills that will be required to perform data science-related tasks in a variety of industries and positions. "Higher education needs to be nimble and responsive, and its bachelor's, graduate, certificate, and executive-level programs have to be responsive to workforce needs". [1]

Organizations seek to take advantage of the vast amount of data they collect day in and day out.

[1] Burning Glass Technologies. ·'The Quant Crunch. How The Demand for Data Science Skills Is Disrupting the Job Market." https://www.burning-glass.com/wp-content/uploads/The Quant Crunch.pdf pg. 3

"They want to use that data to make more insightful, forward-looking decisions: This requires a new generation of advanced analytics, high-level diagnostic and predictive, and the employees who have the skill sets to use them."[2] Virginia houses the third-largest tech industry workforce in the nation, and the need for qualified data science professionals is considerable. "The Commonwealth currently has one of the highest concentrations of data scientist and mathematical science employment, according to 2020 research".[3]

The proposed BS degree program in Data Science will help provide the next generation of data scientists. Graduates of this program will have the skills to lead data-driven activities and manage data science resources supporting a range of applications. This program will meet workforce needs by providing students with the skills necessary for the data focused roles as scientists and analysts. Students educated in computational and statistical data science techniques have the potential to become future leaders in data-centric industry, government, and academia careers. ODU is fully committed to offering the proposed degree program to ensure professionals are prepared and trained to meet industry needs.

Institutional Mission

The mission statement of Old Dominion University is: "Old Dominion University, located in the City of Norfolk in the metropolitan Hampton Roads region of coastal Virginia, is a dynamic public research institution that serves its students and enriches the Commonwealth of Virginia, the nation, and the world through rigorous academic programs, strategic partnerships, and active civic engagement."

The proposed BS in Data Science supports ODU's mission by providing a rigorous academic program in data science that will supply qualified graduates to regional and national industry partners to enrich Virginia's workforce and address the growing need for data science professionals. As part of ODU's strategic plan (2014-2019), the university committed investments in data science to support ODU's reputation for research excellence by putting forward a data science initiative.[4] Additionally, the Colleges of Sciences, Engineering, and Business have all built capability in data analytics and data-intensive research.

Admission Criteria

Students applying to the BS program in Data Science should meet the minimum university admission requirements for Undergraduate Admission. Because the curriculum requires a number of computer science and mathematics courses, it is highly recommended that prospective students feel confident in their high school math and science skills. Required criteria for freshman applicants include:

- A completed online application and associated application fee
- Official High School Transcript (or GED Transcript)
- SAT/ACT Scores, Self-reported Scores, or Test Optional

[2] Jachimski, S. & Delurey, M. (2019). Predictive Analytics Handbook for National Defense, Booz Allen Hamilton
[3] https://issuu.com/vedpvirginia/docs/vedp_q421_issuu/62
[4] https://www.odu.edu/about/planning/strategic-plan-14-19

- Optional Items: Activity Resume, Letter(s) of Recommendation and/or Personal Statement

Applications will be evaluated for both fall and spring admission. Students must have a 3.3 or higher GPA to get the minimal merit scholarship. For students who chose to test, the average SAT is 1000-1210 (reading and math only) and average ACT is 19-26.

Curriculum

The proposed BS in Data Science will require 120 credit hours to complete the degree. Along with the core coursework, the curriculum includes three concentrations: artificial intelligence and machine learning, visualization, and geographic information systems. It also includes the general education requirements and undesignated electives. The program requires a capstone course for graduation.

The focus of the curriculum is on the foundational data science areas of statistics, computer science, and information technology. Students will learn programming to develop statistical models and how to use data for identifying trends and patterns, communicating results, and recommending optimal solutions. Through the core curriculum, students will gain knowledge about using data in various ways to solve problems.

Students will choose a concentration area to gain knowledge, skills, and abilities that are more specific to an interest area. Coursework for the artificial intelligence and machine learning concentration focuses on topics such as object-oriented programming, algorithms and data structures, and information retrieval. Coursework for the visualization concentration focuses on data visualization, data structures, computer graphics and visual design. Coursework for the geospatial analysis concentration focuses on geographic information systems, spatial analysis, and remote sensing.

Students will be exposed to various application domains through problem-based learning that uses data to solve real-world problems. Students will have opportunities to participate in faculty lead research and industry internships. The capstone project will provide an opportunity for students to synthesize knowledge from their coursework and apply it to solve real-world data analytics problems.

New courses are denoted with an asterisk.

Program Requirements

General Education Requirements (32 credit hours)

Written Communication (6 cr)
Oral Communication (3 cr)
Mathematics (MATH 162M required) (3 cr)
Language and Culture (Anticipated met through High School credits, otherwise 6 credits)
Information Literacy and Research (0 cr) (Met through Foundations of Data Science Class)

Human Creativity (3 cr)
Interpreting the Past (3 cr)
Literature (3 cr)
Philosophy and Ethics (0 cr) (Met through Ethics and Data Class)
Impact of Technology (0 cr) (Met through Elements of Data Class)
The Nature of Science (8 cr)
Human Behavior (3 cr)

Prerequisite Core Courses (14 credit hours)

MATH 163. Precalculus II (3 cr)
STAT 130M. Elementary Statistics (3 cr)
CS 150. Problem Solving and Programming I (4 cr)
CS 250. Problem Solving and Programming II (4 cr)

Core Courses (27 credit hours)

*DASC/CS 15X Computing Languages for Data Scientist (3 cr)
BDA 200T Elements of Data (3 cr)
*DASC 300G. Foundations of Data Science (3 cr)
*DASC 3XX Ethics and Data (3 cr)
STAT 310. Introduction to Data Analysis (3 cr)
IT 360T. Principles of Information Technology (3 cr)
IT 450. Database Concepts (3 cr)
*DASC 434 Data Science Research Methods (3 cr)
*DASC 435W Capstone in Data Science (3 cr)

Elective Courses (18-20 credit hours)

Students can take the electives from any discipline at ODU and/or complete courses for other concentrations, as needed, to complete the required 120 credit hours.

Concentration Areas (27-29 credit hours):

Students pick one concentration area. Note that the typical credit total per concentration is 27, however, the visualization concentration requires 29. Each concentration area consists of math prerequisites, course prerequisites, and concentration courses.

<u>Artificial Intelligence & Machine Learning Concentration (27 credit hours)</u>
The purpose of this concentration is to provide students skills in computational data analysis, object-oriented programming, and natural language processing. Students will take courses to learn topics such as machine learning and artificial intelligence.

<u>Math Prerequisites</u>
MATH 211. Calculus I (4 cr)
MATH 212. Calculus II (4 cr)

Course Prerequisites

CS 252. Introduction to Unix for Programmers (1 cr)
CS 361. Data Structures and Algorithms (3 cr)

Concentration Courses

Pick One:

BDA 411 Introduction to Machine Learning (3 cr)
CS 422/522. Introduction to Machine Learning (3 cr)

Pick One:

CS 480/580. Introduction to Artificial Intelligence (3 cr)
MSIM 480/580. Introduction to Artificial Intelligence (3 cr)

Pick Three: *

CS 330. Object-Oriented Programming and Design (3 cr)
CS 432/532. Web Science (3 cr)
ECE 407/507. Introduction to Game Development (3 cr)
CYSE 420 Applied Machine Learning in Cybersecurity (3 cr)
ECE 450/550. Introduction to Machine Learning for Data Analytics Engineering. (3 cr)
DASC 450 Machine Learning and Society (3 cr)

Visualization Concentration (29 credit hours)

The purpose of this concentration is to give student skills in data modeling, simulation, and results rendering. Students who choose the visualization concentration will take courses in data visualization, data structures, and computer graphics.

Math Prerequisites

MATH 212. Calculus II (4 cr)

Course Prerequisites

BNAL 206. Business Analytics I (3 cr)
BNAL 306. Business Analytics II (3 cr)
CS 252. Introduction to Unix for Programmers (1 cr)
GAME 201T Introduction to Game Studies (3 cr)

Concentration Courses

BNAL 403/503. Data Visualization and Exploration (3 cr)
CS 361. Data Structures and Algorithms (3 cr)
ECE 406/506. Computer Graphics and Visualization (3 cr)
GAME 340. Visual Design and Digital Graphics for Games (3 cr)

Pick Two: *

ARTH 320W. History of Graphic Design (3 cr)
CRJS 344 Social Science and Crime Mapping (3 cr)
ECE 475 Transportation Data Analytics (3 cr)
ECE 407 Introduction to Game Development (3 cr)
GAME 440. Advanced Visual Design and Digital Graphics for Games (3 cr)
IT 325. Web Site and Web Page Design (3 cr)

Geographic Information Systems Concentration (27 Credit Hours)

The purpose of this concentration is to provide the skills for spatial predictive modeling, geostatistics, and space-time pattern mining and object detection. Students will take courses in courses in geographic information systems, spatial analysis, and remote sensing.

General Prerequisites

GEOG 102T. Digital Earth Geospatial Technology and Society (3 cr)

Course Prerequisites

GEOG 402/502. Geographic Information Systems (3 cr)
GEOG 404/504. Digital Techniques for Remote Sensing (3 cr)

Concentration Courses

GEOG 419/519. Spatial Analysis of Coastal Environments (3 cr)
GEOG 425/525. Internet Geographic Information Systems (3 cr)
GEOG 432/532. Advanced GIS (3 cr)
GEOG 462/562. Advanced Spatial Analysis (3 cr)
GEOG 463/563. GIS Programming (3 credit)
GEOG 473/573. GIS for Emergency Management (3 cr)

*Courses from the controlled electives list have different prerequisites. Students should consult the course description and address any questions to their advisor.

Total Credits - 120

SCHEV Baccalaureate Requirements

The BS in Data Science, with any of the concentrations, will require 120 credit hours. The program is achievable in a traditional, four-year graduation plan.

Appendix A provides a sample plan of study by year and semester for full-time students. Appendix B provides course descriptions for new and existing program courses.

Faculty Resources

The proposed BS in Data Science degree will be administrated by the newly formed School of Data Science. The faculty teaching the courses are from the Departments of Computer Science and the Department of Mathematics and Statistics in the College of Sciences, as well as the Department of Philosophy and Religious Studies and the Department of Political Science and Geography in the College of Arts and Letters. Additionally, courses will also be taught by faculty from the Electrical and Computer Engineering from the College of Engineering.

The nature of the program is interdisciplinary involving faculty from math, statistics, physics, computer science, engineering and information technology. The faculty chosen to teach in this program are currently actively teaching and performing research in this area. ODU currently has 51 faculty teaching and conducting research in data science or related areas, including business, computer science, engineering, geography, mathematics and statistics, and ocean and earth sciences. This includes 22 new data science hires during the last 5 years.[5] Appendix C provides some faculty abbreviated CVs.

Student Learning Assessment

Students who complete the proposed BS in Data Science degree will possess the appropriate knowledge, skills, and abilities needed to work in a wide variety of data science positions. Student learning will be assessed throughout the proposed program through a variety of formative and summative measures. Assessment measures include, but are not limited to assigned papers, quizzes, tests, and projects assigned during classroom instruction. Students will be evaluated on their ability to synthesize knowledge from their coursework and apply it to solve real-world data analytics programs. Additionally, students will be required to complete a capstone project. This project will require students work in teams to solve a data science/analytics problem in a real-world business, industry, or government setting using established techniques and methods within the field.

Learning Outcomes

Student learning outcomes cover many of the technical competencies that are required for the area data science. Specifically, graduates will be able to:

- Use statistics to represent data and test hypotheses
- Apply descriptive and predictive statistics to perform data analysis
- Use modern programming languages to develop data science tools
- Employ program design for computer-based algorithm development
- Identify information technology to support organizational decision making
- Demonstrate knowledge of databases and data management
- Apply data analytics to inform policy, product development, and social issues
- Demonstrate expertise in application of data science concepts to real life problem sets

Each concentration area provides additional learning experiences to support and enhance learning outcomes. The concentration areas provide more detailed employment skills as identified in the next section. The curriculum map shown in the table below provides the core coursework that supports the learning outcome and the formative (process) and summative (outcome) evaluation activities.

Curriculum map for BS in Data Science

Learning Outcomes	**Courses**	**Assessment Methods**

[5] Old Dominion University: Educating Data Scientists for the Digital Future, 2021 Langley Research Center Data Science Expo, July 15, 2021. Lesley Greene, PhD, Associate Dean of Graduate Studies, College of Sciences.

Use statistics to represent data and test hypotheses	STAT 130M**.** Elementary Statistics DASC 3XX. Ethics and Data	Formative: Chapter tests, homework assignments, use of statistical software Summative: Final Exam
Apply descriptive and predictive statistics to perform data analysis	STAT 310**.** Introductory Data Analysis DASC 434 Data Science Research Methods	Formative: Chapter tests, weekly data analysis homework using Microsoft EXCEL, written interpretation of results Summative: Final Exam
Use modern programming languages to develop data science tools	CS 150**.** Problem Solving and Programming I DASC/CS 15X. Languages for Data Science	Formative: Quizzes, weekly laboratory, programming assignments and exercises Summative: Midterm Exam, Laboratory Midterm Exam, Final Exam, Laboratory Final Exam
Employ program design for computer-based algorithm development	CS 250**.** Problem Solving and Programming II**.** DASC/CS 15X. Languages for Data Science	Formative: Laboratory work including ungraded activities that introduce techniques, Assignments that include graded activities that practice programming Summative: Midterm Exam, Final Exam, Final Project that applies the techniques of design, coding, testing, and debugging
Identify information technology to support organizational decision making	IT 360T. Principles of Information Technology. BDA 200T Elements of Data	Formative: Class exercises, discussions, presentations, homework, ethics assignment. Summative: Three Exams
Demonstrate knowledge of databases and data management	IT 450**.** Database Concepts**.** BDA 200T Elements of Data	Formative: In class discussions, homework, quizzes, exams Summative: Team project, Final Exam
Apply data analytics to inform policy, product development, and social issues	DASC 300. Foundations of Data Science. DASC 436W. Data Science Capstone Project.	Formative: Class discussions; quizzes, homework assignments, small group work Summative: Midterm Exam, Final Exam
Demonstrate expertise in application of data science concepts to real life problem sets	DASC 434 Data Science Research Methods DASC 436W. Data Science Capstone Project.	Summative: Students work individually or in groups to plan, design, and carry out a research project assessed with program level rubric

The student learning outcomes for the core program and the concentration areas were developed by reviewing the SCHEV requirements for the program and the desired skill sets based on job

listings. Program faculty will maintain awareness of the learning outcomes and their relevance through professional development activities such as conference attendance, workshop training, and keeping abreast of the professional literature.

Employment Skills

The ODU BS in Data Science degree will provide skills that graduates need to pursue careers as data-focused professionals, such as data scientists and data analysts. The proposed education program ensures they are well-qualified to transition to the workforce by meeting the requirements identified by both the Department of Defense and industry.[6] Additionally, the concentration areas ensure graduates of the program will have the skills, abilities, and workplace competencies needed for employment in a variety of domains.

All graduates of the proposed program will be able to:

- Develop and implement analytics applications to transform raw data into meaningful information using data-oriented programming languages and visualization software.
- Apply data mining, data modeling, natural language processing, and machine learning to extract and analyze information from large structured and unstructured datasets.
- Analyze data to identify trends or relationships among variables and to inform operational decisions or activities.
- Determine appropriate methods for data analysis and apply mathematical principles or statistical approaches to solve problems in scientific or applied fields.
- Prepare graphics or other representations of information that aids in visualizing and interpreting data findings
- Prepare analytical reports and present results to others.[7]

Additionally, graduates in each concentration will demonstrate the additional workplace competencies.

Artificial Intelligence & Machine Learning Concentration

The Machine Learning & Artificial Intelligence concentration prepares students to enter rapidly emerging fields related to big data applications. Graduates in this concentration will be able to:

- Produce software code using object-oriented programming
- Apply different learning techniques for machine learning algorithms
- Understand the concepts and challenges of artificial intelligence

Visualization Concentration

The Visualization concentration prepares students to apply modeling and simulation methods to a variety of data science visualization scenarios. Graduates in this concentration will be able to:

- Model a variety of systems from different domains
- Design appropriate software architectures for visualization in modeling and simulation
- Employ data visualization to enhance organizational decision making

[6] https://datascience.ucsd.edu/wp-content/uploads/2019/04/DataScience_Brochure_11APR2019_v2.pdf
[7] https://www.onetonline.org/link/summary/15-2051.00

Geographic Information Systems Concentration

The Geospatial Information Systems (GIS) concentration enables students to develop advanced skills and expertise in geospatial science and technology. Graduates in this concentration will be able to:

- Use GIS as a tool for manipulating spatial information
- Design spatial database structures for analytical operations
- Apply methods, standards, and policies for use of GIS on the Internet

Relation to Existing Old Dominion University Degree Programs

Current academic programs at Old Dominion University in data science and related fields are spread across numerous departments, several colleges, and the recently created School of Cybersecurity. This causes some fields of study to be difficult to locate under their present titles. This proposal advocates for the creation of an undergraduate bachelor's degree in data science that draws from applicable coursework across university programs but provides a single home for undergraduate data science students. It provides a consistent curriculum for data science students.

The Department of Information Technology & Decision Sciences in the Strome College of Business offers the Business Analytics and Intelligence major that develop skills in the use of the computer as a decision-making tool. The BS in Data Science degree leverages some of this coursework in the Visualization concentration. The proposed program does not overlap with the BSBA in Information Technology degree, also offered by this department. The Batten College of Engineering and Technology offers a Data Analytics Engineering concentration for the BS ECE and BS COME degrees. Some of these courses are optional courses in the Visualization concentration. Finally, the Department of Computer Science within the College of Sciences allows students to choose electives from a range of data science topics; these courses will be used to form the Artificial Intelligence & Machine Learning concentration. The Department of Mathematics and Statistics offers a BS Mathematics with a Big Data Analytics major. This is a math-intensive major and there is no coursework from this curriculum used in the proposed program.

The proposed BS in Data Science program will utilize the existing data science course resources currently available at ODU. However, the curriculum was purposely designed to ensure that students are prepared with the correct course prerequisites to take the available data science courses offered across departments as they progress through the program. The program provides an educational pathway starting at the freshman level for students to obtain a data science degree by identifying the appropriate math, prerequisite, core and concentration course sequences. Without this program, many students find that they cannot access data science courses, as most of these courses are at the upper undergraduate level and they are not prepared with the prerequisite courses.

The proposed BS in Data Science program is not an expansion of an existing program, and will not compromise any existing degree programs at Old Dominion University. No degree

programs will close as a result of the initiation and operation of the proposed degree program.

Justification of the Proposed Program

Response to Current Needs (Specific Demand)

Data Science is a rapidly growing field of study. The magnitude of data that are being generated and stored every day is overwhelming. Data science makes it possible to uncover important information that would otherwise remain hidden.[8] With the growth of data mining techniques and the need for more data-driven decisions, more data science and analytical skills are needed in the workforce. Industry, government, health care and other organizations need graduates trained with skills to manipulate data, analyze information and determine solutions to complex problems. Nationally, in 2020 there were 2.7 million open jobs in data analysis, data science and related careers, which represents a 39% growth in employer demand for both data scientists and data engineers. Additionally, the recruitment platform Zippier ranked Virginia in 2022 as one of the top 15 locations where companies were actively looking for data scientists.[9]

The proposed BS in Data Science responds to current needs in both Virginia and the nation as a whole and prepares students to work in a variety of industries. The identified specific demand includes 1) private sector demand for trained data scientist and data analysts to address the rapidly growing sources of data; 2) Department of Defense demand to exploit data collection and analysis for predictive analytics; 3) demand specific to the Hampton Roads area, which has one of the highest needs for qualified data science professionals[10]; and 4) addressing the gap for highly trained analysts by providing a data science educated workforce.

Private Sector

Data science touches nearly every industry through the application of advanced data analytics. Among the new job opportunities for data scientists and data analysts, IBM predicts 59% of jobs will be in finance, information technology (IT), insurance and professional services careers, with 61% of data scientists and advanced analysis positions available to bachelor's degree holders.[11] Generating and maintaining a skilled talent base represents one of the key competitive advantages that enables long term success in industries that leverage applications of data science. The data science workforce consists of both subject matter experts who advance fundamental data sciences innovation and applications, as well as workers who leverage data sciences as a part of their job functions.[12]

Data science represents an increasingly important source of competitive advantage in the private sector. Businesses recognize that their internal databases provide exploitable information about their customers, markets, supply chains, and more. Likewise, increasingly robust data sources have created opportunities for firms to compete in or transform traditional markets by offering

[8] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[9] https://www.zippia.com/data-scientist-jobs/best-states/
[10] https://issuu.com/vedpvirginia/docs/vedp_q421_issuu/62
[11] IBID.
[12] TEConomy Partners, LLC., Situational Assessment Scan for Advancing Data Sciences in Hampton Roads Initial Quantitative Analysis of Demand Drivers April 2022

new products and services.[13] The ability to merge private, internally held data with external data sources has placed data science and data scientists on the front line of market competition across an ever-expanding frontier of domains. Three specific areas in which data science applications have developed are (1) improving the reliability and quality of products and services, (2) increasing organizational efficiency and agility to better respond to changes in the marketplace, and (3) anticipating new threats and opportunities based on competitive trends and risk management.[14] Predictive analytics, targeted customer engagements, and autonomous, interconnected systems can be used to improve products and processes; companies such as Google and Microsoft have used prediction markets to estimate the demand for new products and services and the completion time and release of complex software development projects. In these cases, data scientists work with data generated by market participants responding to specific statements about the future.[15]

Department of Defense

Department of Defense (DoD) organizations are utilizing high level diagnostic and predictive analytics to take full advantage of the vast amount of data they collect. They are using data to make more insightful decisions about readiness, logistics, manpower, and intelligence. Data science allows them to drill into cause and effect and determine the mathematical probability of future occurrences, rather than just looking back at data to make projections.[16] In 2013, the Defense Intelligence Agency (DIA) Directorate for Analysis initiated a program seeking to modernize defense intelligence analysis, seeking to address the big data problem from the military intelligence perspective and focusing on the inadequacy of existing personnel, tradecraft, and methodologies to manage big data analysis. Technology and the ability to gather and manipulate vast quantities of data have fundamentally altered the way that intelligence organizations collect, process, analyze, and disseminate information.[17] Data science professionals' impact defense business, operational, and mission outcomes with insights gained from analyzing large data sets. Careers in the DoD include data analysts, who extract knowledge, communicate insights, and inform decision making using visualizations; data scientists, who create methods, processes, and mathematical solutions to extract knowledge and answer questions; and data engineers, who discover ways to design, integrate, and acquire data systems, architectures, and data models. [18]

Hampton Roads Area

There is a high demand for workers with data science expertise in the Hampton Roads area of Virginia from national labs, finance, industry, health care providers, military centers, and maritime related industry. NASA Langley Research Center and the National Institute of

[13] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[14] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[15] IBID.
[16] Jachimski, S. & Delurey, M. (2019). Predictive Analytics Handbook for National Defense, Booz Allen Hamilton
[17] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[18] https://datascience.ucsd.edu/wp-content/uploads/2019/04/DataScience_Brochure_11APR2019_v2.pdf

Aeronautics are in Hampton, Virginia, and Jefferson Laboratory is located nearby in Newport News. Norfolk, where Old Dominion University is located, is home to major command centers from every branch of the military, including the largest naval base in the world, Norfolk Naval Station. The Norfolk/Virginia Beach area includes health care providers Sentara Medical Group and Eastern Virginia Medical School (EVMS). The Port of Virginia—which includes Newport News Marine Terminal, Norfolk International Terminals, Portsmouth Marine Terminal and Virginia International Gateway in Portsmouth, Virginia— is the only U.S. East Coast port with Congressional authorization of 55-ft depth channels and currently stands as the third largest container port on the East Coast. Moreover, Amazon, with its existing workforce of more than 10,000 full-time employees in the state of Virginia, is building two operations facilities in Hampton Roads, creating 1,500 additional jobs. Furthermore, Norfolk and Virginia Beach host several financial and insurance data centers.[19]

Data Science jobs grew by 10% in Hampton Roads from 2015-2021.[20] Key areas of high growth were found in cybersecurity, marine engineering, and logistics occupations. Hiring consistently outpacing separations, indicating a stable regional demand for data sciences talent over time and consistently growing workforce.[21] In Hampton Roads, federal workforce, defense, and maritime industries were by far the leading employers. However, demand was not limited to just one industry sector, but cross-cutting industry demand with over 15,552 unique postings for jobs with Data Science-related skill sets in the Hampton Roads region over the 5-year period.[22]

Providing a Data Science Educated Workforce

The consulting firm, PricewaterhouseCoopers published a report that makes a case for investing in America's data science talent.[23] A similar report published by the McKinsey Global Institute predicts that data-driven technologies will bring an additional $300 billion of value to the U.S. healthcare sector alone, and more "data-savvy managers" will be needed to capitalize on the potential of data. [24] This report goes on to warn that in spite of a strong push in the U.S. at the federal, state, and local levels for more STEM graduates, more programs are needed to educate the needed data science workforce.

To help meet Virginia's growing tech talent needs, the Commonwealth has committed $1.1 billion toward more than doubling the number of bachelor's and master's graduates in computer science, computer software engineering, and computer engineering in the next two decades. As data science continues to grow, more of Virginia's colleges and universities are needed to equip undergraduate and graduate students with the skills that will be required to perform data science-

[19] Xu, Y. et al. (2021). Collaborative Research: HDR DSC: Southeastern Virginia Data Science Education Consortium, Proposal to the national Science Foundation, NSF 21-523, Harnessing the Data Revolution.
[20] TEConomy Partners, LLC. Situational Assessment Scan for Advancing Data Sciences in Hampton Roads Initial Quantitative Analysis of Demand Drivers April 2022
[21] IBID.
[22] TEConomy analysis of job postings data from Emsi (Emsi Release 2022.1)
[23] Business-Higher Education Forum. (2017). Investing in America's data science and analytics talent. The case for action. https://www.pwc.com/us/en/publications/assets/investing-in-america-s-dsa-talent-bhef-and-
[24] McKinsey Global Institute (2011). Big data: The next frontier for innovation, competition, and productivity, https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/0ur%20lnsights/Big%20data%20The%20next%20frontier%20for%20innovation/MG1 big data exec summary.ashx, p. 10.

related tasks in a variety of industries and positions.[25]

Graduates of the proposed BS in Data Science program will be qualified to work in a variety of industries including private and public businesses, health organizations, and government agencies. The knowledge and skills learned through the curriculum will be applicable to meet organizations' needs for professionals who can develop statistical models, perform analytics on complex data and use data science and analytics to solve problems and create new strategies for success. The BS in Data Science provides students broad exposure to concepts, methods, and tools that data science professionals should be familiar with prior to entering the workforce: computer science, statistics, and data visualization.[26] ODU's program is "proactively responding to the rising demand for analytics skills with programs that prepare students for the analytics-related roles of today and tomorrow."[27]

Employment Demand

Graduates of the proposed BS in Data Science degree program will be qualified to work as data-focused professionals, such as data scientists and data analysts, along with a wide variety of related fields. Graduates will be prepared to work in a variety of domains, such as finance, health care, logistics, defense, among others. O*Net Online, the Department of Labor website that allows users access to occupational information, describes the work of Data Scientists as "develop and implement a set of techniques or analytics applications to transform raw data into meaningful information using data-oriented programming languages and visualization software."[28] They apply tools including data mining, data modeling, natural language processing, and machine learning to extract and analyze information from large structured and unstructured datasets, which they then visualize, interpret, and report data findings.

The Bureau of Labor Statistics (BLS) and the Virginia Employment Commission (VEC) do not have data or a job category for data scientists or data analysts. The closest occupations on which there are some data are operations research analysts. The BLS indicates that operations research analysts "use advanced mathematical and analytical methods to help organizations solve problems and make better decisions." Moreover, operations research analysts "use statistical analysis, simulations, predictive modeling, or other methods to analyze information and develop practical solutions to business problems ... and, advise managers and other decision makers on the effects of various courses of action to take in order to address a problem."[29] Graduates of the BS in Data Science will possess the same skill set and be able to use mathematical and analytical methods to solve problems and make decisions.

The BLS indicates that between from 2020 to 2030, employment of operations research analysts is "projected to grow 25 percent, much faster than the average for all occupations." The BLS

[25] https://issuu.com/vedpvirginia/docs/vedp_q421_issuu/62
[26] Knopp, B. et al., 2016. Defining the Roles, Responsibilities, and Functions for Data Science, The RAND Corporation https://www.rand.org/pubs/research_reports/RR1582.html
[27] Burning Glass Technologies. ·'The Quant Crunch. How The Demand for Data Science Skills Is Disrupting the Job Market." https://www.burning-glass.com/wp-content/uploads/The Quant Crunch.pdf pg. 3
[28] National Center for O*NET Development. 15-2051.00 - Data Scientists. *O*NET Online*. Retrieved June 30, 2022, from https://www.onetonline.org/link/summary/15-2051.00
[29] https://www.bls.gov/ooh/math/operations-research-analysts.htm

notes that " About 10,200 openings for operations research analysts are projected each year, on average, over the decade. As technology advances and companies seek efficiency and cost savings, demand for operations research analysis should continue to grow. In addition, increasing demand should occur for these workers in the field of analytics to improve business planning and decision making.[30] Operations research analysts will continue to be needed to provide support for the Armed Forces and to assist in developing and implementing policies and programs in other areas of government.

Graduates of the proposed program will be prepared to serve businesses in Virginia. The Virginia Employment Commission, Labor Market Index shows strong demand in Virginia for operations research analysts and mathematicians and statisticians. Virginia is one of the states with the highest concentration of jobs and location quotients in Data Scientists and Mathematical Science Occupations, which is projected to grow 22 percent from 2020 to 2030, much faster than the average for all occupations. About 7,200 openings for computer and information research scientists are projected each year, over the decade.[31] At this point in time there are over 300 job openings in the state of Virginia (July 2022).

Labor Market Information: Bureau of Labor Statistics, 2018-2028 (10-Yr)

Occupation Title	Base Year Employment	Projected Employment	Total % Change and #'s	Typical Entry Level Education
Operations research analysts	104,100	129,700	25%, 25,600	Bachelor's Degree

Labor Market Information: Virginia Employment Commission, 2018-28 (10-Yr)

Occupation Title	Base Year Employment	Projected Employment	Total % change and #'s	Annual Change	Education
Operations research analysts	9,324	12,036	29%, 2,712	271	Bachelor's Degree

Appendix D provides employment announcements.

Duplication

Three public four-year institutions in Virginia offer a comparable degree program: College of William and Mary, George Mason University and Virginia Tech. Each offers BS degrees in Data Science or a related field.

College of William and Mary

The College of Arts and Sciences offers a BS Degree in Data Science.[32] The focus of the core curriculum is to provide students with a solid foundation in data science through learning the

[30] Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Operations Research Analysts, at https://www.bls.gov/ooh/math/operations-research-analysts.htm (visited June 21, 2022).
[31] Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, May 2020 State Occupational Employment and Wage Estimates Virginia on the Internet at https://www.bls.gov/oes/current /oes_va.htm (visited 9/9/21).
[32] https://www.wm.edu/as/data-science/ds_degrees/data_science_bs/index.php

basics of programing, modeling, machine learning, data visualization, database structures, and ethics in data science.

Similarities
The BS in Data Science requires a minimum of 40 credits of identified data science coursework. The program consists of 21 credits of core courses including a capstone, and nine credits of mathematics. The remaining credits are fulfilled by selecting one of the required tracks

Differences
The concentrations, data applications, algorithms, or spatial data analysis, are different than those offered by the proposed ODU program. This program emphasizes the ethical, moral, and societal implications of data science and students are encouraged to work with faculty to conduct research, while the ODU capstone is project-based, focused on real-world applications.

George Mason University (GMU)
The College of Science, Computational and Data Sciences Department offers a BS in Computational and Data Science.[33] As an interdisciplinary STEM-designated program, this degree addresses the role of computation in the areas of big data, modeling, and simulation and combines real-world computer science skills, data acquisition and analysis, scientific modeling, applied mathematics, and simulation.

Similarities
This program requires 120 credit hours including 16 credits from core coursework and 18 credits from courses selected from the extended core that support the major. These courses are augmented with 11 credits from math courses and six credits from statistics courses.

Differences
While the program provides the full data science skill set, it does not allow students to choose a specific concentration area for their studies, as is offered in the proposed ODU program.

Virginia Tech (VT):
The College of Sciences offers the Computational Modeling and Data Analytics (CMDA) program that draws on expertise from three primary departments: Mathematics, Statistics, and Computer Science.[34] The program focuses on extracting information from large data sets, as well as analyzing and solving problems by modeling, simulation, and optimization and emphasizes techniques of applied computation.

Similarities
This program requires 120 credit hours consisting of 36 credits from core coursework and 12 credits of restricted electives.

Differences
Students in this program choose one of the following concentrations: Biological Sciences, Cryptography & Cybersecurity, Economics, Geosciences or Physics. Except for Geosciences,

[33] https://science.gmu.edu/academics/departments-units/computational-data-sciences/computational-and-data-science-bs
[34] https://vt.edu/academics/majors/computational-modeling-and-data-analytics.html

these options are very different from the ODU proposed program concentrations.

Location

Old Dominion University is located in coastal Virginia. The proposed degree program will be the only undergraduate degree program in data science in the area.

Enrollment and Degrees Awarded at Comparable Programs in Virginia

Enrollment	**Fall 17**	**Fall 18**	**Fall 19**	**Fall 20**	**Fall 21**
College of William & Mary	NA	NA	NA	38	72
George Mason University	29	81	117	159	195
Virginia Tech	NA	NA	NA	NA	593
Degrees Awarded	**2016- 17**	**2017- 18**	**2018- 19**	**2019- 20**	**2020- 21**
College of William & Mary	NA	NA	NA	NA	8
George Mason University	NA	3	10	30	31
Virginia Tech	NA	NA	NA	NA	NA

Student Demand

Old Dominion University evaluated student demand for the proposed BS in Data Science from 1) a student survey and 2) enrollment trends for similar programs.

Student Survey

To be conducted later in accordance with SCHEV guidelines.

Enrollment in Existing Relevant Fields

Enrollment trends for four ODU data science relevant programs (Computer Engineering, Computer Science, Mathematics, and Information Systems) at the bachelor's level indicate sustained interest in this degree field.[35]

Enrollment Trends at ODU

Combined Enrollment Similar Fields	**2018**	**2019**	**2020**	**2021**
BS in Computer Engineering, Computer Science, Mathematics, and Information System	891	953	1071	956

[35] R. Wojtowicz (2021) "Data Science Initiative"

Summary of Projected Enrollments in Proposed Program

Year 1		Year 2		Year 3		Year 4			**Year 5 Target Year**		
2023 - 2024		2024 - 2025		2025 - 2026		2026 - 2027			2027 - 2028		
HDC	FTES	HDCT	FTES	HDC	FTES	HDCT	FTES	GRAD	HDCT	FTES	GRAD
75	50	100	70	150	100	200	140	50	220	155	60

Assumptions:
Retention percentage: 80%
Full-time students: 100% Part-time students: 0%
Full-time students credit hours per semester: 15
Full-time students graduate in 4 years

Projected Resource Needs for the Proposed Program

Resource Needs

Old Dominion University has all of the faculty, classified support, equipment, space, library, and other resources necessary to launch the proposed BS in Data Science. This program will be housed in the newly formed School of Data Science. The following subsections detail the resources required to operate the proposed program for its initiation in Fall semester 2023 through the target year 2026-27. Assessments of need for full-time, part-time, and adjunct faculty are based on a ratio of 1.0 FTE of instructional effort for every 20 FTE students in lower division courses and 14 FTE students in upper division courses The proposed program will require a total of 4 FTE of instructional effort in Fall 2023, rising to 12 FTE faculty by the target year of 2027-2028.

Full-Time Faculty
Two faculty members in the School of Data Science and one (1) faculty member in the Department of Computer Sciences and one (1) in the Department of Mathematics and Statistics will dedicate 50% of their time teaching the required courses in the proposed degree. In the initiation semester (Fall 2023) through the target year (2027-28), each faculty member will dedicate 0.5 FTE to the proposed program. One (1) faculty member in the School of Data Science and one faculty member in the Department of Philosophy and Religious Studies will dedicate 50% of their time teaching required courses starting in the second year of the program (Fall 2024) through the target year (2027-28), each faculty will dedicate 0.5 FTE to the proposed program.

Part-Time Faculty
The proposed degree program will require part-time faculty effort from the School of Data Science and different colleges and departments to support the concentration courses starting in the third year of the program (Fall 2025). Depending on concentration selections, the following commitments are anticipated:

The School of Data Science will provide 4 part-time faculty, resulting in 2.0 part-time instructional effort in the initiation semester through the target year in 2027-28.

The Department of Computer Science will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort in the initiation semester through the target year in 2027-28.

The Department of Mathematics and Statistics will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

The Department of Philosophy and Religious Studies will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

The Department of Electrical and Computer Engineering will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

The Department of Political Science and Geography will provide 1 part-time faculty, resulting in 0.50 part-time instructional effort through the target year in 2027-28.

Adjunct Faculty
No adjunct faculty are required to launch and sustain the proposed degree program.

Graduate Assistants
No graduate assistants are required to launch and sustain the proposed degree program.

Classified Positions
The administrative assistant employed by the School of Data Science will support the proposed degree program. The program will require .5 FTE of classified support to launch the program and sustain the level of effort will remain constant through the target year. Salary for the administrative assistant will be $25,000 in salary and $11,812 in benefits.

Equipment (including computers)
No new equipment, including computers is necessary to launch and sustain the proposed degree program.

Library
No additional library resources are required to launch and sustain the proposed degree program. The University Libraries has resources to include journals, magazines, electronic materials, and other publications for data science and analytics. As a member of the Virtual Library of Virginia (VIVA), online access to journals is available.

Telecommunications
No new telecommunications resources are required to launch and sustain the proposed degree program.

Space
No new space is required to launch and sustain the proposed degree program.

Targeted Financial Aid
No targeted financial aid is required to launch and sustain the proposed degree program.

Other Resources (specify)
No other resources are needed to initiate or sustain the proposed degree program.

Funds to Initiate and Operate the Degree Program

Note: Institutions must use the recommended student-faculty ratio when estimating FTE enrollments and required faculty FTEs.

Cost and Funding Sources to Initiate and Operate the Program			
Informational Category		**Program Initiation Year 2023 - 2024**	**Program Full Enrollment Year[36] 2026 - 2027**
1.	Projected Enrollment (Headcount)	75	200
2.	Projected Enrollment (FTE)	50	140
3.	Projected Enrollment Headcount of In-State Students	60	160
4.	Projected Enrollment Headcount of Out-of-State Students	15	40
5.	Estimated Annual Tuition and E&G Fees for In-state Students in the Proposed Program	$11,630	$12,793
6.	Estimated Annual Tuition and E&G Fees for Out-of-State Students in the Proposed Program	$31,586	$34,745
7.	Projected Total Revenue from Tuition and E&G Fees Due to the Proposed Program	$1,171,590	$3,436,680
8.	Other Funding Sources Dedicated to the Proposed Program (e.g., grant, business entity, private sources)	$	$

[36] For the "Full Enrollment Year" use: for associate degrees, initiation year plus 1; for baccalaureate degrees, initiation plus 3; for master's degrees, initiation plus 2; for doctoral degrees, initiation plus 3.

Appendices

Appendix A – Sample Plan of Study

Full Time Student

Year	Fall Semester	Spring Semester
Freshman	ENGL 110C (Written Comm) (3)	ENGL 211C or ENGL 221C or ENGL 2 31C (Written Comm) (3)
	MATH 162M Precalculus I (Math) (3)	Interpreting the Past (See Advisor for Course Options) (3)
	COMM 101R or COMM 103R or Comm 112R or DANC/THEA 152R (Oral Comm) (3)	Human Behavior (See Advisor for Course Options)
	COMM 272G or CS 120G or CS 121G or STEM 251G (Information Literacy and Research) (3)	MATH 163. Precalculus II -> For CS 150 (3)
	DASC 15X – Languages for Data Science (3)	BDA 200T Elements of Data (3)
Sophomore	Nature of Science I (See Advisor for Course Options) (4)	Nature of Science II (See Advisor for Course Options) (4)
	STAT 130M – Elementary Statistics (3)	STAT 310 – Introduction to Data Analysis (3)
	CS 150. Problem Solving and Programming I (4)	CS 250. Problem Solving and Programming II. (4)
	Concentration Math Pre-Requisite #1 (3)	Concentration Math Pre-Requisite #2 (3)
Junior	DASC 300 – Foundations of Data Science (3)	DASC 3XX Ethics and Data (3)
	IT 360T. Principles of Information Technology (3)	IT 450. Database Concepts (3)
	Concentration Pre-Requisite #1 (3)	Concentration Course #1 (3)
	Concentration Pre-Requisite #2 (3)	Concentration Course #2 (3)
	Approved program or minor elective (4)	Approved program or minor elective (4)
Senior	ENGL 112L or ENGL 114L or WCS 100L (Literature) (3)	Human Creativity (See Advisor for Course Options) (3)
	DASC 434 Data Science Research Methods (3)	DASC 435 Data Science Capstone Project (3)
	Concentration Course #3 (3)	Concentration Course #4 (3)
	Concentration Course Option (3)	Approved program or minor elective (3)
	Approved program or minor elective (3)	Approved program or minor elective (3)

Credit Hours – Freshman – Fall Semester – 15
Credit Hours – Freshman – Spring Semester – 15
Credit Hours – Sophomore – Fall Semester – 14
Credit Hours – Sophomore – Spring Semester – 14
Credit Hours – Junior – Fall Semester – 16
Credit Hours – Junior – Spring Semester – 16
Credit Hours – Senior – Fall Semester – 15
Credit Hours – Senior – Spring Semester – 15

Total Credit Hours 120

Appendix B – Course Descriptions

New courses are denoted with an asterisk.

Core Courses

BDA 200T. Elements of Data Science. 3 Credits.
This course offers a non-technical introduction to the emerging and interdisciplinary area of data science. Students will be introduced to the development, fundamental tools, and the impact of data science in a wide range of disciplines such as business, the sciences and engineering. Fundamental data visualization techniques and basic concepts of machine learning will be applied through real-life data science projects. Moreover, students will explore the general framework for ethical thinking and practicing data science, the current challenges, the benefits, the potential harms and risks posed by developing data science models and technology. Prerequisites: MATH 102M or MATH 103M.

CS 150. Problem Solving and Programming I. 4 Credits.
Laboratory work required. Introduction to computer-based problem solving and programming in C++. Topics include problem solving methodologies, program design, algorithm development, and testing. C++ language concepts include variables, data types and expressions, assignment, control-flow statements, functions, arrays, pointers, structs, and classes. Pre- or corequisite: MATH 163.

CS 250. Problem Solving and Programming II. 4 Credits.
Laboratory work required. Design issues arising in software systems and C++ programming techniques aiding in their solution. Topics include the software life cycle, methods of functional decomposition, design documentation, abstract data types and classes, common data structures, dynamic data structures, algorithmic patterns, and testing and debugging techniques. Term project required. Prerequisites: CS 150 or ENGN 150 with a grade of C or better. Pre- or corequisite: CS 252 and MATH 211.

*__DASC/CS 15X Computing Languages for Data Science.__ 3 Credits

__*DASC 300G. Foundations of Data Science.__ 3 credits**.** This course provides an interdisciplinary overview of data sciences drawing on key elementary topics related to data analytics. A specific focus is given to the way that decisions made about data from those disciplinary pursuits inform policy, product development, and humanity.

__*DASC 3XX Ethics and Data.__ 3 Credits

__*DASC 434 Data Science Research Methods__

__*DASC 436W Data Science Capstone Project.__ 3 Credits. Students work individually or in groups to plan, design, and carry out a research project demonstrating expertise with data science. Final papers which report the results for the study are presented in a formal research seminar. The projects reflect knowledge gained from undergraduate work and training received

in discipline-specific research methods and statistics courses. Senior standing.

IT 360T. Principles of Information Technology. 3 Credits.
A survey of computer hardware, software, procedures, applications, and management information concepts. Provides an understanding of the application of the computer to the support of managerial decision making. Information Systems majors may not use this course for credit toward the B.S.B.A. degree. Prerequisites: completion of general education information literacy and research requirement and junior standing; and a declared major in the University or permission of the Dean's Office.

IT 450. Database Concepts. 3 Credits.
Introduction to database concepts. Historical development, data models, database analysis, design and implementation, query languages, data security, and introduction to business transaction systems. Prerequisites: IT 201 with a C or better or IT 360T for non-IT major students and a declared major in the university or waiver approved through the Strome College of Business Undergraduate Advising; permission of the instructor is required for non-IT major students.

MATH 163. Precalculus II. 3 Credits.
The second course in a two-course sequence designed to provide strong preparation for calculus. Topics include exponential and logarithmic functions/equations, trigonometric functions/equations, trigonometric identities, laws of sines and cosines, vectors, polar representation of complex numbers, binomial theorem, and conic sections. Prerequisite: A grade of C or better in MATH 162M.

STAT 130M. Elementary Statistics. 3 Credits.
Topics include data description, elementary probability, binomial and normal distributions, interval estimation, hypothesis testing, and correlation. The role of probability in inference is emphasized. Prerequisites: qualifying score on a placement test administered by the University Testing Center, qualifying SAT or ACT score, MATH 100 or a C or better in MATH 101M, or a higher level math course.

STAT 310. Introductory Data Analysis. 3 Credits.
Topics include measures of location, dispersion, and strength of relationship; parametric and nonparametric tests of location; one-way analysis of variance; complete block designs; simple and multiple regression; correlation; measures of association for categorical data. Microsoft EXCEL will be used extensively as an aid in data analysis. Written interpretation of results will be a routine component of daily assignments. Prerequisites: A grade of C or better in STAT 130M or MATH 211.

Concentration Courses

1. Artificial Intelligence & Machine Learning

Math Prerequisites

MATH 211. Calculus I. 4 Credits.
A first course in calculus and analytic geometry. Topics include differentiation and integration of algebraic and transcendental functions of one variable and applications. Prerequisites: A grade of C or better in MATH 163 or MATH 166.

MATH 212. Calculus II. 4 Credits.
A second course in calculus and analytic geometry. Topics include techniques of integration, polar coordinates, infinite series, solid geometry, vectors, lines and planes. Prerequisite: A grade of C or better in MATH 211.

Course Prerequisites

CS 252. Introduction to Unix for Programmers. 1 Credit.
Laboratory work required. Available for pass/fail grading only. An introduction to Unix with emphasis on the skills necessary to be a productive programmer in Unix, Linux, and related environments. Topics include command line shells, files and directories, editing, compiling and common command line utilities. Prerequisites: A grade of C or better in CS 150, ENGN 150 or IT 205.

CS 361. Data Structures and Algorithms. 3 Credits.
Laboratory work required. Common abstract data types, including vectors, lists, stacks, queues, sets, maps, heaps, and graphs. Standard C++ interfaces for these ADTs. Generic programming via iterators and templates. Choosing data structures and algorithms to implement ADTs, via analysis of their time and space complexity. Prerequisites: CS 252 and a grade of C or better in CS 250. Pre- or corequisite: MATH 212.

Courses

CS 330. Object-Oriented Programming and Design. 3 Credits.
Laboratory work required. The techniques and idioms of object-oriented programming in C++ and Java. Methods of object-oriented analysis and design with the Unified Modeling Language. Multi-thread programs, synchronization, and graphic user interfaces. Prerequisites: CS 252 and a grade of C or better in CS 250. Pre- or corequisite: MATH 211.

CS 432/532. Web Science. 3 Credits.
Provides an overview of the World Wide Web and associated decentralized information structures, focusing mainly on the computing aspects of the Web: how it works, how it is used, and how it can be analyzed. Students will examine a number of topics including web architecture, web characterization and analysis, web archiving, Web 2.0, social networks, collective intelligence, search engines, web mining, information diffusion on the web, and the Semantic Web. Prerequisites: A grade of C or better in CS 361 and CS 330.

CS 422/522. Introduction to Machine Learning. 3 Credits.
Laboratory work required. An introduction to machine learning with a focus on practical aspects of various learning techniques. Topics include supervised learning (linear models, probabilistic

models, support vector machine, decision trees, neural networks, etc.), unsupervised learning (scaling, dimension reduction, clustering, etc.), reinforcement learning, and model evaluation. The course will also discuss applications on image analysis, text processing, and biomedical informatics. Prerequisites: MATH 316 and CS 150 (or equivalent programming experience).

CS 480/580. Introduction to Artificial Intelligence. 3 Credits.
Laboratory work required. Introduction to concepts, principles, challenges, and research in major areas of AI. Areas of discussion include natural language and vision processing, machine learning, machine logic and reasoning, robotics, expert and mundane systems. Prerequisites: A grade of C or better in CS 361.

BDA 411/511. Introduction to Machine Learning. 3 Credits.
An introductory course on machine learning. Machine Learning is the science of discovering pattern and structure and making predictions in data sets. It lies at the interface of mathematics, statistics and computer science. The course gives an elementary summary of modern machine learning tools. Topics include regression, classification, regularization, resampling methods, and unsupervised learning. Students enrolled are expected to have some ability to write computer programs, some knowledge of probability, statistics and linear algebra.
Prerequisites: MATH 312, MATH 316, and STAT 330 or STAT 331.

MSIM 480/580. Introduction to Artificial Intelligence. 3 Credits.
Introduction to concepts, principles, challenges, and research in major areas of artificial intelligence. Areas of discussion include natural language and vision processing, machine learning, machine logic and reasoning, robotics, expert and mundane systems. Laboratory work required. Prerequisite: Instructor approval.

ECE 407/507. Introduction to Game Development. 3 Credits.
An introductory course focused on game development theory and modern practices with emphasis on educational game development. Topics include game architecture, computer graphics theory, user interaction, audio, high level shading language, animation, physics, and artificial intelligence. The developed games can run on a variety of computer, mobile, and gaming platforms. (Cross listed with MSIM 408.) (Offered spring)
Prerequisites: CS 361 or MSIM 331.

CYSE 420/520. Applied Machine Learning in Cybersecurity. 3 Credits.
This course introduces the concepts and technologies of machine learning with a focus on applications related to cybersecurity. The objectives are to learn fundamental knowledge and practical experience and identify the use case of machine learning techniques in cybersecurity. The course will discuss traditional and advanced machine learning techniques, e.g., neural network, deep convolutional neural network, generative adversarial network, and transfer learning algorithms. Students will engage in oral and written communication by reporting and presenting the materials of the course project. Prerequisites: CYSE 250 or permission of the instructor.

ECE 450/550. Introduction to Machine Learning for Data Analytics Engineering. 3 Credits.
Machine Learning provides a practical treatment of design, analysis and implementation of

algorithms, which learn from examples. Topics include multiple machine learning models: linear regression, logistic regression, neural networks, support vector machines, deep learning, Bayesian learning and unsupervised learning. Students are expected to use popular machine learning tools and algorithms to solve real data engineering problems. (Offered spring) Prerequisites: A grade of C or better in ENGN 150 or CS 150. Pre- or corequisite: ECE 350.

2. Visualization

Math Prerequisites

MATH 212. Calculus II. 4 Credits.
A second course in calculus and analytic geometry. Topics include techniques of integration, polar coordinates, infinite series, solid geometry, vectors, lines and planes. Prerequisite: A grade of C or better in MATH 211.

Course Prerequisites

BNAL 206. Business Analytics I. 3 Credits.
An introduction to methods of business analytics. Topics are concentrated in descriptive analytics, which include descriptive statistics, normal and binomial distributions, decision making under uncertainty and under risk, decision analysis incorporating sample information, sampling distributions and Central Limit Theorem, interval estimation, and hypothesis testing. Business and economic applications are emphasized. Computer software, as a tool for problem solving, is utilized where appropriate. Prerequisites: A grade of C or better in MATH 162M or placement into a higher level math course.

BNAL 306. Business Analytics II. 3 Credits.
Advanced descriptive and predictive analytics topics include advanced hypothesis testing, analysis of frequency data, correlation analysis, simple and multiple regression, and time series forecasting. Prescriptive analytics topics include linear programming formulation and managerial analysis, and distribution models. PERT/CPM models are also covered. Computer software is utilized throughout the course. Emphasis is on the interpretation of the various outcomes of the application of business analytics tools. Prerequisites: MATH 200, BNAL 206 and a declared major in the University or permission of the Dean's Office.

CS 252. Introduction to Unix for Programmers. 1 Credit.
Laboratory work required. Available for pass/fail grading only. An introduction to Unix with emphasis on the skills necessary to be a productive programmer in Unix, Linux, and related environments. Topics include command line shells, files and directories, editing, compiling and common command line utilities. Prerequisites: A grade of C or better in CS 150, ENGN 150 or IT 205.

GAME 201T. Introduction to Game Studies. 3 Credits.
An introduction to the core concepts and methodologies that inform game design, development, and criticism. This course will provide students with a critical overview of each of these content

areas and will demonstrate how their specific concerns intersect in the design, production, and reception of contemporary games. It will also teach students hands-on methodologies through which to translate these concepts into creative and critical praxis.

Courses

BNAL 403/503. Data Visualization and Exploration. 3 Credits.
This course introduces students to concepts and processes, technologies, and methodologies that are commonly used in data visualization that an organization may use to enhance its descriptive, predictive, and prescriptive methods for making fact-based decisions. Prerequisite: A grade of C or better in BNAL 306 or permission of the instructor.

CS 361. Data Structures and Algorithms. 3 Credits.
Laboratory work required. Common abstract data types, including vectors, lists, stacks, queues, sets, maps, heaps, and graphs. Standard C++ interfaces for these ADTs. Generic programming via iterators and templates. Choosing data structures and algorithms to implement ADTs, via analysis of their time and space complexity. Prerequisites: CS 252 and a grade of C or better in CS 250. Pre- or corequisite: MATH 212.

ECE 406/506. Computer Graphics and Visualization. 3 Credits.
The course provides a practical treatment of computer graphics and visualization with emphasis on modeling and simulation applications. It covers digital image and signal processing basics such as sampling and discrete Fourier transform, computer graphics fundamentals, visualization principles, and software architecture for visualization in modeling and simulation. Written communication and information literacy skills are stressed in this course. (Cross listed with MSIM 441.) (Offered fall) Prerequisites: ECE 348 or CS 361.

GAME 340. Visual Design and Digital Graphics for Games. 3 Credits.
This course focuses on visual design and digital graphics for game-based applications. Designed to help students make the transition from traditional 2D drawing and illustration techniques to the types of 2D and 3D digital asset creation privileged by games and game-based applications, it provides students with hands-on experience with using industry standard software to generate sprites, UI components, textures, and other common 2D elements. It also introduces students to 3D modeling and texturing techniques, including but limited to optimization, texture mapping, and basic rigging and animation techniques. Prerequisites: GAME 201T.

ARTH 320W. History of Graphic Design. 3 Credits.
A critical study of the formal, cultural, and intellectual developments of the graphic design discipline, including related activity in fine art, illustration, and industrial design. This is a writing intensive course. Prerequisites: Grade of C or better in ENGL 211C or ENGL 221C or ENGL 231C.

CRJS 344. Social Science and Crime Mapping. 3 Credits.
A critical exploration of applying geographic information system (GIS) to view, understand, question, interpret, and visualize social science and crime data that reveal relationships, patterns, and trends. Students will learn to 1) frame a research question or hypothesis from a location-

based perspective; 2) collect, create and examine geographically referenced demographic, social, and criminological data; 3) learn to use GIS mapping software to visualize, manage and analyze this data in order to investigate the relationship between geographic, demographic, social and criminological variables; and 4) arrive upon decisions and conclusions and communicate these via the creation of publishable maps. Prerequisites: SOC 201S or CRJS 215S or permission of the instructor.

ECE 475/575. Transportation Data Analytics. 3 Credits.
This course presents the basic techniques for transportation data analytics. It will discuss statistical modeling, prominent algorithms, and visualization approaches to analyze both small- and large-scale data sets generated from transportation systems. Practices of using different data for various real-world traffic/transportation applications and decision making will also be discussed. Prerequisites: Basic probability and statistics (e.g., STAT 330 or ECE 304); any programming language such as C, Python or Java is beneficial but not required.

ECE 407/507. Introduction to Game Development. 3 Credits.
An introductory course focused on game development theory and modern practices with emphasis on educational game development. Topics include game architecture, computer graphics theory, user interaction, audio, high level shading language, animation, physics, and artificial intelligence. The developed games can run on a variety of computer, mobile, and gaming platforms. (Cross listed with MSIM 408.) (Offered spring)
Prerequisites: CS 361 or MSIM 331.

ECE 441/541. Advanced Digital Design and Field Programmable Gate Arrays. 3 Credits.
Course will present FPGA technologies and methods using CAD design tools for implementation of digital systems using FPGAs. Topics include advanced methods of digital circuit design including specification, synthesis, implementation and prototyping; managing multiple clock domains, static timing analysis, timing closure, system reset design, simulation, and optimization; troubleshooting using embedded logic analyzers and integrated development environments (IDEs). Practical system design examples include general purpose data processing, system on a chip (SOC) prototyping, hardware accelerators, and an introduction to domain specific architectures. (Offered spring) Prerequisites: ECE 341.

GAME 440. Advanced Visual Design and Digital Graphics for Games. 3 Credits.
This course focuses on advanced visual design and digital graphics for game-based applications, including but not limited to topics such as 3D modeling, texturing, texture mapping, animation, optimization, shaders, and particle systems. Conceived as a studio course, it provides students with hands-on experience working with a variety of digital software applications to create and optimize graphical assets for games and similar applications. Prerequisites: GAME 201T.

IT 325. Web Site and Web Page Design. 3 Credits.
Advanced design and hands-on implementation skills in designing and creating dynamic web sites. Key topics include web page design, usability principles, HTML, XHTML, Cascading Style Sheets (CSS), JavaScript and Internet security. Prerequisites: IT 150G.

3. Geospatial Analysis

General Prerequisites

GEOG 102T. Digital Earth: Geospatial Technology and Society. 3 Credits.
This course provides an overview and exploration of 1) the digital representation of the Earth and 2) geospatial science and technology. The course investigates geospatial technological innovations affecting the environment, resources, and society, including satellite global positioning systems, geographic information systems, and earth observations. Students develop hands-on skills as well as critical-thinking skills concerning the role of increasingly ubiquitous geospatial technology and their influences on social, economic, and human-environment interactions.

Course Prerequisites

GEOG 402/502. Geographic Information Systems. 3 Credits.
A study of the conceptual basis of GIS as a tool for manipulating spatial information. The course focuses on how geographic information can be input and organized within the framework of a GIS. Students will work on a computer-based GIS to gain a greater understanding of spatial database structures and analytical operations. Prerequisites: Junior standing or permission of instructor.

GEOG 404/504. Digital Techniques for Remote Sensing. 3 Credits.
Study of the theory and application of remote sensing, emphasizing environmental applications and aerial and satellite imagery. Covers the fundamentals of multispectral digital image processing, including sensors pre-processing, enhancement, classification, accuracy assessment, and GIS data integration. Prerequisites: Junior standing or permission of instructor.

Courses

GEOG 419/519. Spatial Analysis of Coastal Environments. 3 Credits.
The course integrates remotely sensed and field techniques for scientific investigation and practical management of coastal environmental systems. Spatial modeling of coastal processes and management tools using Geographic Information System (GIS). Prerequisites: GEOG 404 or permission of the instructor.

GEOG 425/525. Internet Geographic Information Systems. 3 Credits.
Theoretical and practical exploration of methods, standards, and policies related to the development and utilization of geographic information systems on the Internet. Students will create and utilize distributed geospatial data and analytical systems using the WWW and the Internet to address geographical problems. Prerequisites: GEOG 402.

GEOG 432/532. Advanced GIS. 3 Credits.
The study of a series of advanced topics in the field of geographic information systems/science. Focus is placed on the development of projects/models and a survey of several advanced techniques. Students will work on a computer-based GIS to implement topics from lectures.

Prerequisites: GEOG 402.

GEOG 462/562. Advanced Spatial Analysis. 3 Credits.
This course introduces the essential theoretical concepts and analytical tools for analyzing spatial process, spatial autocorrelation, spatial patterns, techniques for spatial interpolation, network connectivity, big data, and landscape patterns. The course culminates with students carrying out their own spatial analysis projects. This course assumes that students understand the basic concepts in GIS with some experience in software operation of ArcGIS.
Prerequisite: GEOG 402 or permission of the instructor.

GEOG 463/563. GIS Programming. 3 Credits.
This course develops students' GIS programming skills. Focus is placed on Python programming in ArcGIS and JavaScript in Web GIS development. Prerequisites: GEOG 402.

GEOG 473/573. Geographic Information Systems for Emergency Management. 3 Credits.
Students will demonstrate advanced skills and techniques using spatial data to prevent, mitigate, respond to, and recover from intentional, natural, and accidental homeland security threats and emergencies. This course demonstrates the importance of rapidly disseminating spatial information towards the prevention and response of various organizations to homeland security events. This course will provide students with the tools and experience required to collect, prepare and manage spatial data and enable students to be prepared to map and analyze the data to quickly and effectively create a coordinated response to real homeland security events.
Prerequisites: GEOG 100S, GEOG 101S, or permission of the instructor.

Appendix C – Faculty Curriculum Vitae (abbreviated)

College of Sciences, Department of Computer Science

Sun, Jiangwen, Ph.D., Computer Science and Engineering, University of Connecticut, 2015, Assistant Professor, Specialization: Machine Learning and Data Mining Techniques

Li, Yaohang, Ph.D., Computer Science, Florida State University, 2003, Professor, Specialization: Computational Science, High Performance Computing

College of Engineering, Department of Electrical and Computer Engineering

Chen, Chung Hao, Ph.D., Electrical Engineering, University of Tennessee, Knoxville, 2009, Associate Professor, Specialization: Computer Vision, Robotics, Image Processing, Data Mining

Li, Jiang, Ph.D., Electrical Engineering, University of Texas at Arlington, 2004, Associate Professor, Specialization: Machine learning, Modeling, and Simulation

College of Arts and Letters, Department of Political Science and Geography

Liu, Hua, Ph.D., Geography, Indiana State University, 2007, Associate Professor, Specialization: Remote Sensing and Geographic Information Systems

College of Arts and Letters, Department of Philosophy and Religious Studies

Kouri Kissel, Teresa, Ph.D., Philosophy, The Ohio State University, 2016, Assistant Professor, Specialization: Philosophy of Logic, Mathematics, and Language

Appendix D - Employee Demand Job Announcements

Number	Date Retrieved	Position, Company, Location
1	9/8/22	Data Scientist Jefferson Lab Newport News, VA
2	9/8/2022	Cybersecurity Data Scientist (Hybrid) The MITRE Corporation Hampton, VA
3	9/8/2022	Data Scientist Systems Planning and Analysis, Inc. Norfolk, VA
4	9/8/2022	Data Engineer CTG Norfolk, VA
5	9/8/2022	DATA SCIENTIST Military Sealift Command Virginia
6	9/8/2022	Data Scientist, Lead - 39092 Huntington Ingalls Industries Norfolk, VA
7	9/8/2022	Data Scientist Booz Allen Hamilton Norfolk, VA
8	9/8/2022	Python Data Scientist Latitude, Inc. Norfolk, VA
9	9/8/2022	Data Scientist / Data Analytics SkyePoint Decisions Virginia Beach, VA
10	9/8/2022	Data Analyst BigBear.ai, Inc. Norfolk, VA

Data Scientist

SAVED

Jefferson Lab
Newport News, VA

Apply on Jefferson Lab | Apply on Getwork | Apply on Adzuna | Apply on Recruit.net | Apply on Tarta.ai

Full-time | Health insurance | Dental insurance | Paid time off

Job highlights

Identified by Google from the original job post

Qualifications

- Be a proactive, highly motivated self-starter with demonstrated experience with contributing and leading tasks on major projects with multi-disciplinary teams
- BS degree in computer science, information systems or other relevant information technology field
- Six years of experience in relevant IT field
- Ability to work with large data sets and mine relevant information for use in AI/ML applications
- Proficiency in Python and familiarity with publicly available technical libraries for data analytics (e.g. scikit-learn), deep learning (e.g. Pytorch, Tensorflow) and optimization tools
- Demonstrated ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products

Responsibilities

- The Computational Sciences and Technology (CST) division is responsible for the support of scientific computing projects and the computing infrastructure that advance the science mission of the laboratory
- Uncertainty quantification for single pass deep learning models
- Automated and autonomous for design and control applications
- Robust and scalable Machine Learning (ML)/Artificial Intelligence (AI) solutions
- Identify, lead and complete technical efforts in data science for projects at Jefferson Lab and sponsors
- Contribute to program development by assisting in proposal writing, attend DOE workshops and identifying new collaboration
- Develop software for HPC system across the DOE computing facilities

- Work with large datasets and mine relevant information for use in AI/ML applications
- Demonstrate ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products

Benefits

- Salary Range: $107,400 - $169,600 (SCS III)
- At Jefferson Lab, we believe that a comprehensive employee benefits program is an important and meaningful part of the compensation employees receive
- Medical, Dental, and Vision Care Plans
- Flexible Spending Accounts
- Paid Time-off and Leave Programs (vacation, holidays, sick leave)
- 401(k) Plan – 9% Lab Contribution; 100% vested
- Flexible Work Arrangements (Hybrid & Alternate Work Schedules available)
- Tuition Assistance, Training and Professional Development Programs
- Live near the waterways of the Chesapeake Bay region with access to nearby beaches, mountains, and all major metropolitan centers on the East Coast

Full description

As a matter of corporate policy, all JSA employees are required to be vaccinated against COVID-19. All successful hires will be required to provide COVID-19 vaccination verification as a condition of employment, subject to limited legally

recognized exemptions to the COVID-19 vaccination.

Posting Date: 07/27/2022
Salary Range: $107,400 - $169,600 (SCS III)
Work Location Type: Flexible On-site (working more than 60% on-site)

Come join our team at Jefferson Lab, where great minds matter.

What your job will be like:

The Computational Sciences and Technology (CST) division is responsible for the support of scientific computing projects and the computing infrastructure that advance the science mission of the laboratory. The mission for the data science department is to develop and apply advance data analytics to advance the Jefferson Lab scientific objective and regional scientific efforts. The Data Science Department at Jefferson Lab is conducting research and development in machine learning and data analysis focused on:
• Uncertainty quantification for single pass deep learning models
• Automated and autonomous for design and control applications
• Robust and scalable Machine Learning (ML)/Artificial Intelligence (AI) solutions

In this role you will:
• Identify, lead and complete technical efforts in data science for projects at Jefferson Lab and sponsors
• Contribute to program development by assisting in proposal writing, attend DOE workshops and identifying new collaboration
• Develop software for HPC system across the DOE computing facilities
• Work with large datasets and mine relevant information for use in AI/ML applications
• Demonstrate ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products.
• Be a proactive, highly motivated self-starter with demonstrated experience with contributing and leading tasks on major projects with multi-disciplinary teams.

Qualifications we require:

Education:
• BS degree in computer science, information systems or other relevant information technology field.

Experience:
• Six years of experience in relevant IT field

Knowledge, Skills and Abilities:
• Ability to work with large data sets and mine relevant information for use in AI/ML applications
• Proficiency in Python and familiarity with publicly available technical libraries for data analytics (e.g. scikit-learn), deep learning (e.g. Pytorch, Tensorflow) and optimization tools
• Proactive, highly motivated self-starter with demonstrated experience with contributing and leading tasks on major projects with multi-disciplinary teams.
• Demonstrated ability to develop approaches and solutions to complex problems in the forms of proposals, software, documents or other work products.

About Jefferson Lab

Join a community with a common purpose of solving the most challenging scientific and engineering problems of our time. The Jefferson Lab campus is located in southeastern Virginia amidst a vibrant and growing technology community.

A career at Jefferson Lab is more than a job. You will be part of “big science” and work alongside top scientists and engineers from around the world unlocking the secrets of our visible universe. Managed by Jefferson Science Associates, LLC; Thomas Jefferson National Accelerator Facility is entering an exciting period of mission growth and is seeking new team members ready to apply their skills and passion to have an impact. You could call it work, or you could call it a mission. We call it a challenge. We do things that will change the world.

Total Rewards at Jefferson Lab

At Jefferson Lab, we believe that a comprehensive employee benefits program is an important and meaningful part of the compensation employees receive. Our benefits program includes, but is not limited to:
• Medical, Dental, and Vision Care Plans
• Flexible Spending Accounts
• Paid Time-off and Leave Programs (vacation, holidays, sick leave)
• 401(k) Plan – 9% Lab Contribution; 100% vested
• Flexible Work Arrangements (Hybrid & Alternate Work Schedules available)
• Tuition Assistance, Training and Professional Development Programs
• Live near the waterways of the Chesapeake Bay region with access to nearby beaches, mountains, and all major metropolitan centers on the East Coast

Jefferson Science Associates, LLC (JSA) manages and operates the Thomas Jefferson National Accelerator Facility (Jefferson Lab). JSA is an Equal Opportunity Employer and does not discriminate in hiring or employment on the basis of race, color, religion, ethnicity, sex, sexual orientation, gender identity, national origin, ancestry, age, disability, or veteran status or on any other basis prohibited by federal, state, or local law. As part of the JSA’s equal employment opportunity policy, we also take affirmative action as called for by applicable laws and Executive Orders to ensure that minority group individuals, females, disabled veterans, recently separated veterans, other protected veterans, Armed Forces, and qualified disabled persons are introduced into our workforce and considered for promotional opportunities.

JSA is committed to providing reasonable accommodations for persons with disabilities (unless doing so will result in an undue hardship). If you need a reasonable accommodation for any part of the employment process, please send an e-mail to employment @ jlab.org call (757) 269-7598 to provide the nature of your request. Reasonable accommodations are considered on a case-by-case basis.

Employment with JSA is conditional upon DOE approval if at any time during your employment you are participating in a Foreign Government Talent Recruitment Program or Affiliated activity. Generally, such programs/activities include any foreign-state-sponsored attempt to acquire U.S.-funded scientific research through programs run or funded by the government that target scientists, engineers, students, academics, researchers, and entrepreneurs of all nationalities working or educated in the United States. This includes positions or appointments, both domestic and foreign, titled academic, professional, or institutional appointments whether or not remuneration is received and whether full-time, part-time or voluntary

Cybersecurity Data Scientist (Hybrid)

SAVE

The MITRE Corporation
Hampton, VA

Apply on Job\Searcher Apply on WHNT Jobs Apply on KHON2 Jobs Apply on KDVR Jobs Apply on

7 days ago Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- + Excellent written and verbal communication skills, adapted to a variety of audiences
- + Proven skills in data science related to data wrangling and analysis of data
- + Applicants selected for this position must be eligible for security clearances, will be subject to a government security investigation, and must meet eligibility requirements for access to classified information
- + Typically requires a minimum of 5 years of related experience with a Bachelor's degree; or 3 years and a Master's degree; or a PhD with relevant experience who can immediately contribute at this job step; or equivalent combination of related education and work experience
- + Experience in a customer-facing environment
- + Experience working with teams

Responsibilities

- You will work on real-world problems through the application of sound engineering principles
- + Be comfortable leading tasks, contributing to a team or working independently
- + Respect a diversity of opinion but also be willing to stand your ground when needed
- + Assess the audience and tailor feedback with the receiver's point of view in mind
- + Organize and visually display analytic results for further analysis
- + Prepare comprehensive written reports, presentations, and charts based on research, collection, and analysis of data

Benefits

- $107,500 - $134,500 - $161,500 Annual

- + Experience with cyber analytics
- + Demonstrated experience visualizing multi-dimensional data using tools such as Tableau, Qlik, Kibana, neo4j, ggplot2, Plotly, matplotlib, or D3
- + Demonstrated experience with one modern programming language such as Python, C

Full description

• Why choose between doing meaningful work and having a fulfilling life?
• At MITRE, you can have both.
• That's because MITRE people are committed to tackling our nation's toughest challenges-and we're committed to the long-term well-being of our employees
• MITRE is different from most technology companies.
• We are a not-for-profit corporation chartered to work for the public interest, with no commercial conflicts to influence what we do.
• The R&D centers we operate for the government create lasting impact in fields as diverse as cybersecurity, healthcare, aviation, defense, and enterprise transformation.
• We're making a difference every day-working for a safer, healthier, and more secure nation and world.
• Our workplace reflects our values.
• We offer competitive benefits, exceptional professional development opportunities, and a culture of innovation that embraces diversity, inclusion, flexibility, collaboration, and career growth.
• If this sounds like the choice you want to make, then choose MITRE-and make a difference with us.
• The Center for Securing the Homeland (CSH) Cyber Analytics Department (P742) is seeking a Cybersecurity Data Scientist who will join a team of Data Scientists, Analysts, and Engineers.
• The explosion of data and complexity of problems facing MITRE's sponsors requires an innovative approach which MITRE is leading through the application of new technology and techniques.
• You will work on real-world problems through the application of sound engineering principles.
• Candidates who identify as Data Engineers, Data Scientists, Cloud Engineers, Software Developers, or Software Engineers will be considered strong candidates for this position.
• + Be comfortable leading tasks, contributing to a team or working independently
• + Incorporate feedback and strive for a continuous growth mindset
• + Respect a diversity of opinion but also be willing to stand your ground when needed
• + Assess the audience and tailor feedback with the receiver's point of view in mind
• + Display technical leadership and a growth mindset to learn new skills
• + Demonstrate excellent written and verbal communication skills
• + Perform data wrangling, analyze large and diverse datasets and demonstrate expertise with at least one modern programming language such as Python, R, Java or Scala
• + Organize and visually display analytic results for further analysis
• + Prepare comprehensive written reports, presentations, and charts based on research, collection, and analysis of data
• + Excellent written and verbal communication skills, adapted to a variety of audiences

- + Proven skills in data science related to data wrangling and analysis of data
- + Applicants selected for this position must be eligible for security clearances, will be subject to a government security investigation, and must meet eligibility requirements for access to classified information.
- + Typically requires a minimum of 5 years of related experience with a Bachelor's degree; or 3 years and a Master's degree; or a PhD with relevant experience who can immediately contribute at this job step; or equivalent combination of related education and work experience.
- + Experience in a customer-facing environment
- + Experience working with teams
- + Experience with cyber analytics
- + Experience with data visualization
- + Demonstrated experience visualizing multi-dimensional data using tools such as Tableau, Qlik, Kibana, neo4j, ggplot2, Plotly, matplotlib, or D3.
- + Demonstrated experience with one modern programming language such as Python, C
- $107,500 - $134,500 - $161,500 Annual
- Newly hired employees must be fully vaccinated prior to their employment start date.
- MITRE will provide reasonable accommodation to individuals who are legally entitled to an exemption under applicable laws so long as it does not create an undue hardship for MITRE and/or does not pose a direct threat to the health or safety of the employee or others in the workplace.
- MITRE is proud to be an equal opportunity employer.
- MITRE recruits, employs, trains, compensates, and promotes regardless of age; ancestry; color; family medical or genetic information; gender identity and expression; marital, military, or veteran status; national and ethnic origin; physical or mental disability; political affiliation; pregnancy; race; religion; sex; sexual orientation; and any other protected characteristics.
- MITRE intends to maintain a website that is fully accessible to all individuals.
- If you are unable to search or apply for jobs and would like to request a reasonable accommodation for any part of MITRE's employment process, please contact MITRE's Recruiting Help Line at 703-983-8226 or email at recruitinghelp@mitre.org.
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- Benefits information may be found here

Data Scientist

SAVE

Systems Planning and Analysis, Inc.
Norfolk, VA

Apply on Glassdoor Apply on LinkedIn Apply on ZipRecruiter Apply on My Stateline Jobs Apply on C

11 days ago Full-time Health insurance

Job highlights

Identified by Google from the original job post

Qualifications

- Active NATO or National SECRET (or higher) security clearance
- University degree in Data Science/Data Analytics or a related discipline such as Mathematics, Physics, Computer Science, Software Engineering, OR four years minimum professional experience in the area of Data Science including providing analysis and advice in the field of Data Science within the last five years
- Experience with data science and data science best practices, in particular applied mathematics and statistics
- Experience in modern software architecture and software development related to data science, analytics, and data integration (e.g., Python, SQL, R, KNMIE)
- Experience with machine learning and AI frameworks using TensorFlow, PyTorch, scikit-learn, or other modern machine learning frameworks

Responsibilities

- Contribute to the development and implementation of an enabling data science capability at HQ SACT and for the NATO Enterprise;
- Support execution and implementation of identified analytic opportunities for data analytics, data science, and AI within HQ SACT;
- Contribute to development of advanced Data Science products in form of Minimum Viable Products (MVP), in particular in support of the ACT Innovation Branch;
- Provide subject matter expertise to (military and civilian) staff, support ORS and CPP development, and develop proofs of concept;
- Collaborate with international civilian and military staff officers, data science, and software development teams;
- Support training and training development to increase data literacy

- Knowledge of big data ecosystems and standards
- Experience building and optimizing data pipelines and architectures
- Experience visualizing data and producing high quality graphs, reports, charts, and interactive dashboards
- Experience with data visualization tools such as Tableau or MS Power BI
- Experience working with open source and publicly available data
- Experience with data interoperability and metadata standards (NCDF, STANAGs)
- Experience with agile methodologies
- Experience providing training in various areas related to data science, analytics, and AI at different technical levels
- Experience with all steps of the data science lifecycle to include delivering data products to customers
- Experienced ‘data storyteller’, i.e., communicate efficiently across a diverse audience such as the NATO organization
- Portfolio of demonstrable products available via GitLab or other platforms
- Experience working on a NATO or military (preferably multi-national) staff
- Deep understanding of the NATO organization and its functions
- Knowledge and understanding of warfighting and principles of warfare

Benefits

- You’ll be rewarded with top-tier compensation and benefits

- Knowledge of requirements capture and capability development, in particular in a military context
- Experience in project management
- Proven ability to communicate effectively orally and in writing, with excellent briefing skills
- Fluent in English (written and oral)

Full description

Overview:

MCR, an SPA company, is a fast-growing global company headquartered in Northern Virginia that supports defense and civilian agencies, NATO, and European ministries that face some of the most complex mission challenges in the world. If you are the best at what you do, we are looking for you. At MCR/SPA, you will contribute to programs and projects that matter—to your career, to your fellow citizens, and to your nation. You will use the latest technologies, techniques, and tools. You will be trusted to work independently and make decisions. You'll be rewarded with top-tier compensation and benefits.

NATO established Headquarters Allied Commander Transformation (HQ ACT) in Norfolk, VA, in 2003 to lead transformation efforts and improve military capabilities to meet 21st century security and defense requirements. The majority of the products and services within iHub are falling under a category of Software Intensive Projects (SIP). Those projects are either strictly software development endeavors or there is a large software component that constitutes part of the project. The backlog of iHub projects is constantly growing and so is the demand for iHub services. With that rapid growth, the iHub is looking for top talent individuals to become members of its existing teams in order to assure the continuous delivery of already existing services and to increase pace of production of new products and services.

Are you a Data Scientist looking to make a meaningful impact in creative environment? If so, we are eager to have someone like you join our team of experts supporting NATO.

Responsibilities:
• Contribute to the development and implementation of an enabling data science capability at HQ SACT and for the NATO Enterprise;
• Support execution and implementation of identified analytic opportunities for data analytics, data science, and AI within HQ SACT;
• Contribute to development of advanced Data Science products in form of Minimum Viable Products (MVP), in particular in support of the ACT Innovation Branch;
• Provide subject matter expertise to (military and civilian) staff, support ORS and CPP development, and develop proofs of concept;
• Collaborate with international civilian and military staff officers, data science, and software development teams;
• Support training and training development to increase data literacy.

Qualifications:
• Active NATO or National SECRET (or higher) security clearance
• University degree in Data Science/Data Analytics or a related discipline such as Mathematics, Physics, Computer Science, Software Engineering, OR four years minimum professional experience in the area of Data Science including providing analysis and advice in the field of Data Science within the last five years
• Experience with data science and data science best practices, in particular applied mathematics and statistics
• Experience in modern software architecture and software development related to data science, analytics, and data integration (e.g., Python, SQL, R, KNMIE)
• Experience with machine learning and AI frameworks using TensorFlow, PyTorch, scikit-learn, or other modern machine learning frameworks
• Knowledge of big data ecosystems and standards
• Experience building and optimizing data pipelines and architectures
• Experience visualizing data and producing high quality graphs, reports, charts, and interactive dashboards
• Experience with data visualization tools such as Tableau or MS Power BI
• Experience working with open source and publicly available data
• Experience with data interoperability and metadata standards (NCDF, STANAGs)
• Experience with agile methodologies
• Experience providing training in various areas related to data science, analytics, and AI at different technical levels
• Experience with all steps of the data science lifecycle to include delivering data products to customers
• Experienced ‘data storyteller’, i.e., communicate efficiently across a diverse audience such as the NATO organization
• Portfolio of demonstrable products available via GitLab or other platforms
• Experience working on a NATO or military (preferably multi-national) staff
• Deep understanding of the NATO organization and its functions
• Knowledge and understanding of warfighting and principles of warfare
• Knowledge of requirements capture and capability development, in particular in a military context
• Experience in project management
• Proven ability to communicate effectively orally and in writing, with excellent briefing skills
• Fluent in English (written and oral

Data Engineer

SAVE

CTG
Norfolk, VA

Apply on Lensa Apply on CareerBuilder Apply on LocalJobs.com Apply on Nexxt Apply on Job\Sear

19 days ago Part-time Health insurance

Job highlights

Identified by Google from the original job post

Qualifications

- Bachelors degree in Computer Science, Information Technology or related field; OR equivalent 3+ years of experience
- 3+ years of hands-on experience programming in SQL
- 2+ years of experience building and maintaining automated data pipelines and data assets using batch and/or streaming processes
- Data Transformation
- Data Modeling
- Data Quality
- Datasets
- User Experience
- Data Governance
- Data Management
- Databases
- ETL
- Education Level: Bachelor's Degree (±16 years)

Responsibilities

- Project Duration: 12 months
- Design and maintain data pipelines and services using best practice for ETL/ELT, data management and data governance
- Analyze raw data sources and data transformation requirements
- Perform data modeling against large datasets for peak requirements
- Identify, design and implement process improvement solutions that automate manual processes and leverage standard frameworks and methodologies
- Understand and incorporate data quality principals that ensure optimal performance, impact and user experience
- Create and document functional and technical specifications
- Perform ongoing research to explore new features, versions and related technologies, and

provide recommendations to enhance our offerings

Benefits

- CTG's Benefits Plan allows you to select insurance coverage that best suits your lifestyle, and take part in our savings programs and educational plans
- We offer Flexible Spending Accounts, a 401(k) Retirement Plan, and an Employee Stock Purchase plan
- Our educational plan comprises access to more than 2,000 web-based technical, professional and business development courses

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Full description

Data Engineer

United States

Information Technology

Aug 18, 2022Post Date

22202138Requisition #

Apply for JobShare this JobSign Up for Job Alerts

Computer Task Group (CTG) is seeking aData Engineerto work with a premiere healthcare customer inRochester, MN.

Project Location: Rochester, MN

Project Duration: 12 months

Duties:

Design and maintain data pipelines and services using best practice for ETL/ELT, data management and data governance. Analyze raw data sources and data transformation requirements. Perform data modeling against large datasets for peak requirements. Identify, design and implement process improvement solutions that automate manual processes and leverage standard frameworks and methodologies. Understand and incorporate data quality principals that ensure optimal performance, impact and user experience. Create and document functional and technical

specifications. Perform ongoing research to explore new features, versions and related technologies, and provide recommendations to enhance our offerings

Skills: Healthcare Data knowledge and experience, Healthcare APIs, FHIR, Big Query

Experience and Education Requirements:
• Bachelors degree in Computer Science, Information Technology or related field; OR equivalent 3+ years of experience.
• 3+ years of hands-on experience programming in SQL.
• 2+ years of experience building and maintaining automated data pipelines and data assets using batch and/or streaming processes.

Skills Required:
• SQL
• Data Transformation
• Data Modeling
• Data Quality
• Datasets
• Process Improvement
• Technical Specifications
• User Experience
• Data Governance
• Data Management
• Data Sources
• Databases
• ETL
• Governance
• Maintain Data

To Apply:

To be considered, please apply directly to this requisition using the link provided.

CTG’s Benefits Plan allows you to select insurance coverage that best suits your lifestyle, and take part in our savings programs and educational plans. We offer Flexible Spending Accounts, a 401(k) Retirement Plan, and an Employee Stock Purchase plan. Our educational plan comprises access to more than 2,000 web-based technical, professional and business development courses.

CTG is a leading provider of digital transformation solutions and services that accelerate clients' project momentum and achievement of their desired IT and business outcomes. Our vision is to be an indispensable partner to our clients and the preferred career destination for digital and technology experts. CTG has operations in North America, South America, Western Europe, and India. For more information, visit www.ctg.com.

Our culture is a direct result of the people who work at CTG, the values we hold, and the actions we take. In other words, our people are the culture. It's a living, breathing thing that is renewed every day through the ways we engage with each other, our clients, and our communities. Part of our mission is to cultivate a workplace that attracts and develops the best people, reflected by our recognition as a Great Place to Work-certified company across many of our

global operations.

CTG will consider for employment all qualified applicants including those with criminal histories in a manner consistent with the requirements of all applicable local, state, and federal laws.

CTG is an Equal Opportunity and Affirmative Action Employer. CTG will assure equal opportunity and consideration to all applicants and employees in recruitment, selection, placement, training, benefits, compensation, promotion, transfer, and release of individuals without regard to race, creed, religion, color, national origin, sex, sexual orientation, gender identity and gender expression, age, disability, marital or veteran status, citizenship status, or any other discriminatory factors as required by law. Our Affirmative Action program serves to promote occupational equality and diversity through good faith efforts. CTG is fully committed to promoting employment opportunities for members of protected classes.

Additional Information
• Job Function: Data Science & Analysis
• Education Level: Bachelor's Degree (±16 years)
• Work Remote: Yes
• Travel: No

DATA SCIENTIST

DEPARTMENT OF THE NAVY

Military Sealift Command

COVID-19 Vaccination Requirement

The COVID-19 vaccination requirement for federal employees pursuant to Executive Order 14043 does not currently apply. Some jobs, however, may be subject to agency- or job-specific vaccination requirements, so please review the job announcement for details. Click here for more information.

Summary

This is a public notice flyer to notify interested applicants of anticipated vacancies. Applications will not be accepted through this flyer. Interested applicants must follow the directions in the "How to Apply" section of this flyer to be considered. There may or may not be actual vacancies filled from this flyer. Notice of Result letters will not be sent to applicants who respond to this flyer.

Learn more about this agency

Overview

Help

Accepting applications

Open & closing dates

08/29/2022 to 09/16/2022

Salary

$55,188 - $86,800 per year

Pay scale & grade
GS 9 - 11

Help

Location

1 vacancy in the following location:

Naval Base, Norfolk, VA
1 vacancy

Remote job
No

Telework eligible
Yes—as determined by the agency policy.

Travel Required
Occasional travel - You may be expected to travel for this position.

Relocation expenses reimbursed
No

Appointment type
Permanent -

Work schedule
Full-time -

Service
Competitive

Promotion potential
13

Job family (Series)
1501 General Mathematics And Statistics

Supervisory status
No

Security clearance
Secret

Drug test

No

Announcement number
DE-11628191-22-EAM

Control number
673879300

This job is open to

Help

The public
U.S. Citizens, Nationals or those who owe allegiance to the U.S.

Clarification from the agency

U.S. Citizens

Duties

Help

- You will serve as a DATA SCIENTIST in the KNOWLEDGE MANAGEMENT DIVISION (N93) of MILITARY SEALIFT COMMAND.
- You will serve as the focal point for corporate management, knowledge management, continuous improvement and budgetary planning and programming.
- You will provide expertise as a Data Scientist for applying statistical analysis.
- You will conduct studies and analysis using data science techniques.
- You will support senior level decision makers.

Requirements

Help

Conditions of Employment

- Must be a US Citizen.
- Must be determined suitable for federal employment.
- Must participate in the direct deposit pay program.
- New employees to the Department of the Navy will be required to successfully pass the E-Verify employment verification check. To learn more about E-Verify, including your rights and responsibilities, visit e-verify.gov

- Within the Department of Defense (DoD), the appointment of retired military members within 180 days immediately following retirement date to a civilian position is subject to the provisions of 5 United States Code 3326.
- Males born after 12-31-59 must be registered for Selective Service.
- Per the preliminary nationwide injunction on E.O. 14043, COVID-19 vaccinations will not be implemented or enforced. For more information on vaccine status and workplace safety protocol requirements see Additional Information below.
- You will be required to obtain and maintain an interim and/or final Secret security clearance prior to entrance on duty. Failure to obtain and maintain the required level of clearance may result in the withdrawal of a job offer or removal
- This position may require travel from normal duty station to CONUS and OCONUS and may include remote or isolated sites. You must be able to travel on military and commercial aircraft for extended periods of time.

Qualifications

For GS-11:
In addition to the Basic Requirement (see Education), your resume must demonstrate at least one year of specialized experience at or equivalent to the GS-09 grade level or pay band in the Federal service or equivalent experience in the private or public sector. Specialized experience must demonstrate the following:
- Conducting Machine Learning Algorithms as well as extracting/transforming Big Data for the Development of Deep Learning algorithms.
- Developing and supporting analytics solutions to address questions.
- Applying broad professional knowledge in the areas of operations research, modeling and simulation, data science, or computer science sufficient to service as a consultant and/or technical advisor to senior subject matter specialist or management officials.
- Providing training on statistical and data science tools such as Databricks, RStudio, Python Jupiter/Anaconda notebooks, and Knime to analyze data and develop solutions to business problems.
- Proficiency in one or more programming languages such as Java, C++, Visual Basic, SQL.

For GS-09:
In addition to the Basic Requirement (see Education), your resume must demonstrate at least one year of specialized experience at or equivalent to the GS-07 grade level or pay band in the Federal service or equivalent experience in the private or public sector. Specialized experience must demonstrate the following:
- Assisting with building statistical models, applying machine learning techniques for targeted solutions for effective communication.
- Developing findings through interactive visualizations, documents and presentations.
- Creating automated anomaly detection systems and constant tracking.

- Enhancing data collection procedures to include information to build analytic systems.
- Proficiency in one or more programming languages such as Java, C++, Visual Basic, SQL.

Additional qualification information can be found from the following Office of Personnel Management website: https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/general-mathematics-and-statistics-series-1501star/

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., professional, philanthropic, religious, spiritual, community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment.

Education

Basic Requirements for all grades:

1. Degree: Mathematics, statistics, or actuarial science. The degree must be in a major field of study (at least at the baccalaureate level) that is appropriate for the position.

   or

2. Combination of education and experience: Courses equivalent to a major field of study as shown in paragraph A above, plus additional education or appropriate experience.

In leu of specialized experience you may also qualify based on level of your educations (Transcripts must be provided):

For GS-11: Successful completion of 3 years of progressively higher level graduate education leading to a Ph.D. degree OR Ph.D. or equivalent doctoral degree.

For GS-09: Successful completions of 2 years of progressively higher level graduate education leading to a master's degree OR master's or equivalent graduate degree.

Additional information

Read more

Benefits

How You Will Be Evaluated

You will be evaluated for this job based on how well you meet the qualifications above.

In order to qualify for this position, your resume must provide sufficient experience and/or education, knowledge, skills, and abilities to perform the duties of the specific position for which you are being considered. Your resume is the key means we have for evaluating your skills, knowledge, and abilities as they relate to this position. Therefore, we encourage you to be clear and specific when describing your experience.

As vacancies occur, the Human Resources Office will review your resume to ensure you meet the hiring eligibility and qualification requirements listed in this flyer. You will be rated based on the information provided in your resume, along with your supporting documentation.

If selected, you may be required to provide additional supporting documentation.

If after reviewing your resume and supporting documentation, a determination is made that you inflated your qualifications and/or experience, you may be found ineligible/not qualified.

Please follow all instructions carefully. Errors or omissions may affect your rating or consideration for employment.

All qualification requirements must be met before being considered for any vacancies.

Benefits

Required Documents

How to Apply

Fair and Transparent

Required Documents

Help

A complete resume is required. Your resume must show relevant experience, job title, duties and accomplishments. Your resume must show complete information for each job entry to support minimum qualifications. The following information should be provided in your resume, but it is acceptable to provide elsewhere in your application package: employer's name, starting and end dates (Mo/Yr), hours per week, and pay plan, series and grade level (e.g. GS-0201-09) for relevant federal experience.TIP: A good way to ensure you include all essential information is to use the Resume Builder in USAJOBS to create your resume.

Are you claiming membership in any professional organizations, or possession of a license, certificate or credentials? Check the **Conditions of Employment** section above to see if any are required. If you claim membership, license, certification, or credentials, you must submit a copy of said document in your application package.

Are you using education as a substitute for some or all of the experience requirement? Is there a basic education requirement for this position? Check the **Education** section above to see what is allowed and what is required. Any claims you make in your resume or assessment questionnaire regarding education or degrees MUST be supported by submitting with your application official or unofficial transcripts or a list of courses, grades earned, completion dates, and quarter and semester hours earned issued from your school. While unofficial transcripts are acceptable for initial application, an official transcript will ultimately be required if you are selected for the position. You may submit a copy your degree(s) if specific coursework does not have to be verified.

Are you a veteran claiming 5-point veterans' preference or **claiming sole survivorship preference?** You must submit a copy of your latest DD-214 Certificate of Release or Discharge from Active Duty (any copy that shows all dates of service, as well as character of service [Honorable, General, etc.] is acceptable) OR a VA letter that shows dates of service or service connected disability AND character of service. If you have more than one DD-214 for multiple periods of active duty service, submit a copy for each period of service. If you were issued a DD-215 to amend aforementioned information on the DD-214 you must submit that too. If you are not sure of your preference eligibility, visit the Department of Labor's website: Veterans' Preference Advisor

Are you a disabled veteran or claiming 10-point veterans' preference?
If you are eligible to claim 10 point veterans preference you must submit a DD-214 Certificate of Release or Discharge from Active Duty as described above for 5-point preference.

You must also provide the applicable supporting documentation of your disability (e.g. disability letter from the VA) as described on Standard Form-15 (SF-15). http://www.opm.gov/forms/pdf_fill/SF15.pdf.

Are you an active duty service member? Active Duty Service Members are required to submit a statement of service printed on command letterhead and signed by the command. The statement of service must provide the branch of service, rate/rank, all dates of service, the expected date of discharge and anticipated character of service (Honorable, General, etc.).

Documents submitted as part of the application package, to include supplemental documents, may be shared beyond the Human Resources Office. Some supplemental documents contain personal information such as SSN and DOB and some documents such as military orders and marriage certificates may contain personal information for someone other than you. You may sanitize these documents to remove said personal information before you submit your application. You must provide an un-sanitized version of the documents if you are selected.

If you are relying on your education to meet qualification requirements:

Education must be accredited by an accrediting institution recognized by the U.S. Department of Education in order for it to be credited towards qualifications. Therefore, provide only the attendance and/or degrees from schools accredited by accrediting institutions recognized by the U.S. Department of Education.

Failure to provide all of the required information as stated in this vacancy announcement may result in an ineligible rating or may affect the overall rating.

How to Apply

Help

Read more

Agency contact information

Christopher Trimpey

Phone

(757) 341-3433

Email

chris.trimpey@navy.mil

Address

MILITARY SEALIFT COMMAND
471 East C Street
Norfolk, 23511
GB

Learn more about this agency

Next steps

Read more

Fair & Transparent

The Federal hiring process is set up to be fair and transparent. Please read the following guidance.

Equal Employment Opportunity (EEO) Policy
Reasonable accommodation policy
Financial suitability
Selective Service
New employee probationary period
Signature and false statements
Privacy Act
Social security number request

Print

Share Save

Help

Accepting applications

Open & closing dates
08/29/2022 to 09/16/2022

Salary
$55,188 - $86,800 per year

Pay scale & grade
GS 9 - 11

Location
1 vacancy in the following location:

Naval Base, Norfolk, VA
1 vacancy

Remote job
No

Telework eligible
Yes—as determined by the agency policy.

Travel Required
Occasional travel - You may be expected to travel for this position.

Relocation expenses reimbursed
No

Appointment type
Permanent -

Work schedule
Full-time -

Service
Competitive

Promotion potential
13

Job family (Series)

1501 General Mathematics And Statistics

Supervisory status
No

Security clearance
Secret

Drug test
No

Announcement number
DE-11628191-22-EAM

Control number
673879300

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Saved jobs

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Help center

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FAQs

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Working in government

USAJOBS is a United States Office of Personnel Management website.

EEO Policy Statement

Reasonable Accommodation Policy Statement

Veterans Information

Legal and Regulatory Guidance

Terms and Conditions

Budget and Performance

FOIA

Inspector General

No Fear Act Data

Privacy Policy

USA.gov

Data Scientist, Lead - 39092

SAVE

Huntington Ingalls Industries
Norfolk, VA

Apply on Monster

Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- Candidate should have a strong working knowledge and experience developing cloud software-based capabilities and data science related expertise including machine learning or artificial intelligence
- Candidate should have an inquisitive nature, responsiveness, and excellent testing skills
- Must also possess strong troubleshooting skills and the ability to work under pressure with multiple deadlines
- Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience
- At least 3 years of experience as a data scientist
- Educational requirements may be adjusted for applicable work experience
- Work experience may be adjusted for highly specialized

Responsibilities

- In this role, you will work with on a suite of warfighter simulation systems called the Navy Training Baseline (NTB)
- to enhance and develop new capabilities for futuristic products
- Will work in a fast paced, business environment with our talented team
- Work across functional teams to identify data capture and analysis requirements
- Implement a big data architecture onto NCTE
- Design and build analysis capabilities into the architecture
- Collaborate with software engineers on a data-driven predictive maintenance tool
- Keep up-to-date on current technologies and applications of big data architectures
- Identify opportunities use cases for supervised and unsupervised learning to expand the use of

knowledge or uniquely applicable experience

- Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms
- Experience with Python, R, or other data science related tools
- Experience querying data from SQL databases
- Experience with machine learning, artificial intelligence, neural networks (e.g
- Experience with the Linux operating system
- Experience with configuration management tools (e.g
- Git, Nexus, Maven)
- Experience with the agile software lifecycle
- Experience with anomaly detection, time series forecasting, and predictive maintenance
- Has a proven ability to learn quickly and works well both independently as well as in a team setting
- Kafka, Spark, Flink, Storm, MapReduce, Hadoop)
- Experience implementing a distributed storage system such as HDFS, HBASE etc
- Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines
- Must be able to obtain and maintain a Secret clearance
- US Citizenship is required

the big data architecture within NCTE

- As needed deliver KPIs and automated reporting to teams supporting the NCTE

Full description

+ Employee Type:

Full-Time

+ Location:

Norfolk, VA

+ Job Type:

Management

+ Experience:

Not Specified

+ Date Posted:

3/14/2022

+ Job ID:

39092

+ Telework

Telework - Not Eligible

Job Description

Alion HII-TSD has been providing modeling and simulation software to the Navy Service Program for over 20 years, and the exciting work we do for this customer keeps growing with new and continued demand for our state-of-the-art modeling and simulation software that allows Navy sailors to simulate actual warfare scenarios. The demands for Artificial Intelligence, Machine Learning, and sophisticated Cloud technologies requires that we rise to the challenge to meet the need for years to come. Come be part of this challenging, exciting software development opportunity! Read on for more details:

The Data Scientist is responsible for the data analytics and processing, user interface, utilities, and data modeling to meet Huntington Ingalls Industries research and development objectives. In this role, you will work with on a suite of warfighter simulation systems called the Navy Training Baseline (NTB) to enhance and develop new capabilities for futuristic products. The Data Scientist on the Software Development team provides modeling and simulation application development, live, virtual and constructive systems integration support, in-service engineering support, and data analytics to US Fleet Forces (USFF) and the Number Fleets. The Software Development team is directly responsible, in this context, for developing and maintaining technical solutions and standards to provide the greatest level of training capability to the warfighter, at the lowest possible cost, at the fastest pace achievable.

Candidate should have a strong working knowledge and experience developing cloud software-based capabilities and

data science related expertise including machine learning or artificial intelligence. Candidate should have an inquisitive nature, responsiveness, and excellent testing skills. Must also possess strong troubleshooting skills and the ability to work under pressure with multiple deadlines. Will work in a fast paced, business environment with our talented team.

Duties:

• Work across functional teams to identify data capture and analysis requirements.

• Implement a big data architecture onto NCTE.

• Design and build analysis capabilities into the architecture

• Collaborate with software engineers on a data-driven predictive maintenance tool

• Keep up-to-date on current technologies and applications of big data architectures

• Identify opportunities use cases for supervised and unsupervised learning to expand the use of the big data architecture within NCTE

• As needed deliver KPIs and automated reporting to teams supporting the NCTE

Required Skills:

• Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience

• At least 3 years of experience as a data scientist

• Educational requirements may be adjusted for applicable work experience. Work experience may be adjusted for highly specialized knowledge or uniquely applicable experience.

• Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms

• Experience with Python, R, or other data science related tools

• Experience querying data from SQL databases

• Experience with machine learning, artificial intelligence, neural networks (e.g. Tensorflow)

• Experience with the Linux operating system

• Experience with configuration management tools (e.g. Git, Nexus, Maven)

• Experience with the agile software lifecycle

• Experience with anomaly detection, time series forecasting, and predictive maintenance

• Has a proven ability to learn quickly and works well both independently as well as in a team setting

Desired Skills:

• Experience rapidly scaling data storage and processing

• Experience with causal analysis methods for root cause analysis

• Experience in Modern Java Frameworks and Libraries (e.g. Spring, Guava)

• Experience with data visualization

• Experience with web frontend frameworks (e.g. React) and accessing REST APIs

• Experience in distributed databases, NoSQL, or Graph databases (e.g.Neo4j or MongoDB) a high plus

• Experience in streaming and/or batch analytics (e.g. Kafka, Spark, Flink, Storm, MapReduce, Hadoop)

• Experience implementing a distributed storage system such as HDFS, HBASE etc.

• Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines

Must be able to obtain and maintain a Secret clearance. US Citizenship is required.
• cj

Security Clearance: None

Telework - Not Eligible

Diversity Statement

We are an EOE that values our employee’s talent – regardless of gender, race, ethnicity, national origin, sexual orientation, religion or other protected characteristics –Your Talent Is Our Strength.

Women, minorities, individuals with disabilities and Veterans are encouraged to apply. Alion will provide a reasonable accommodation to individuals with disabilities and disabled veterans who need assistance to apply. Please visit the Alion Careers site for more information. U.S. Citizenship Required for the majority of our positions.

Covid Notice

Federal Executive Order 14042 requires that covered contractor employees who work on, or in connection with, covered Federal contracts or at covered contractor workplaces may be required to be fully vaccinated for COVID-19 and comply with other requirements. Covered contractor employees also must comply with agency COVID-19 workplace safety requirements while in Federal workplaces. Applicant agrees to comply with said requirements to the extent they apply to the applied-for positio

Data Scientist

SAVE

Booz Allen Hamilton
Norfolk, VA

Apply on Booz Allen Hamil… Apply on LinkedIn Apply on Adzuna Apply on Talent.com Apply on

Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- 6+ years of experience with scripting and scientific languages, including Python, R, C++, or Java
- 6+years of experience with tools to manage data and databases including Microsoft Excel, Access, SharePoint, or SQL
- 6+ years of experience with data collection, data processing, data visualization, data analytics, and data science approaches and tools
- Knowledge of statistical measures, including confidence intervals and the significance of error measurements, mathematical modeling techniques, optimization approaches, or machine learning algorithm development
- Ability to obtain a security clearance
- BA or BS degree
- 6+ years of experience with applying machine learning techniques and the key parameters that affect their performance

Responsibilities

- You'll work closely with your customer to understand their questions and needs, and then dig into their data-rich environment to find the pieces of their information puzzle
- You'll develop data collection tools, data visualizations and dashboard, algorithms/scripts to process data or conduct predictive analytics leveraging machine learning or other approaches
- and use the right combination of tools and frameworks to turn that set of disparate data points into objective answers to help Air Force leaders make informed decisions
- You'll provide your customer with a deep understanding of their data, what it all means, and how they can use it

- 6+ years of experience with Big Data programming technologies, including Hadoop, Spark, R, or Hive
- 6+ years of experience in working with a wide range of predictive and decision models and tools for developing models
- Experience with using statistical software applications, including SAS, R, MATLAB, SPSS, or Stata
- Experience with developing statistical and simulation models
- Experience in natural language processing topics, including tagging, syntactic parsing, word sense disambiguation, topic modeling, contextual text mining, and application of deep learning to NLP
- Experience with developing experimental and analytic plans for data modeling processes, using strong baselines, and determining cause and effect relationships accurately
- Secret clearance
- MA or MS degree

Full description

Data Scientist

The Challenge

Are you excited at the prospect of unlocking the secrets held by a data set? Are you fascinated by the possibilities presented by the IoT, machine learning, and artificial intelligence advances? In an increasingly connected world, massive amounts of structured and unstructured data open up new opportunities. As a data scientist, you can turn these complex data sets into useful information to solve global challenges. Across private and public sectors — from fraud detection, to cancer research, to national intelligence — you know the answers are in the data.

We have an opportunity for you to use your analytical skills to improve Air Force mission solutions. You'll work closely with your customer to understand their questions and needs, and then dig into their data-rich environment to find the pieces of their information puzzle. You'll develop data collection tools, data visualizations and dashboard,

algorithms/scripts to process data or conduct predictive analytics leveraging machine learning or other approaches. and use the right combination of tools and frameworks to turn that set of disparate data points into objective answers to help Air Force leaders make informed decisions. You'll provide your customer with a deep understanding of their data, what it all means, and how they can use it. Join us as we use data science for good in aerospace mission solutions. This position is a hybrid role with a combination of working at a Booz Allen office or client site and working remotely.

Empower change with us.

You Have:
• 6+ years of experience with scripting and scientific languages, including Python, R, C++, or Java
• 6+years of experience with tools to manage data and databases including Microsoft Excel, Access, SharePoint, or SQL
• 6+ years of experience with data collection, data processing, data visualization, data analytics, and data science approaches and tools
• Knowledge of statistical measures, including confidence intervals and the significance of error measurements, mathematical modeling techniques, optimization approaches, or machine learning algorithm development
• Ability to obtain a security clearance
• BA or BS degree

Nice If You Have:
• 6+ years of experience with applying machine learning techniques and the key parameters that affect their performance
• 6+ years of experience with Big Data programming technologies, including Hadoop, Spark, R, or Hive
• 6+ years of experience in working with a wide range of predictive and decision models and tools for developing models
• Experience with using statistical software applications, including SAS, R, MATLAB, SPSS, or Stata
• Experience with developing statistical and simulation models
• Experience in natural language processing topics, including tagging, syntactic parsing, word sense disambiguation, topic modeling, contextual text mining, and application of deep learning to NLP
• Experience with developing experimental and analytic plans for data modeling processes, using strong baselines, and determining cause and effect relationships accurately
• Secret clearance
• MA or MS degree

Clearance:

Applicants selected will be subject to a security investigation and may need to meet eligibility requirements for access to classified information.

Build Your Career:

At Booz Allen, we know the power of analytics and we're dedicated to helping you grow as a data analysis professional. When you join Booz Allen, you'll have the chance to:
• access online and onsite training in data analysis and presentation methodologies, and tools like Hortonworks, Docker, Tableau, and Splunk
• change the world with the Data Science Bowl—the world's premier data science for social good competition
• participate in partnerships with data science leaders, like our partnership with NVIDIA to deliver Deep Learning

Institute (DLI) training to the federal government

You'll have access to a wealth of training resources through our Analytics University, an online learning portal specifically geared towards data science and analytics skills, where you can access more than 5000 functional and technical courses, certifications, and books. Build your technical skills through hands-on training on the latest tools and state-of-the-art tech from our in-house experts. Pursuing certifications that directly impact your role? You may be able to take advantage of our tuition assistance, on-site bootcamps, certification training, academic programs, vendor relationships, and a network of professionals who can give you helpful tips. We'll help you develop the career you want as you chart your own course for success.

We're an equal employment opportunity/affirmative action employer that empowers our people to fearlessly drive change – no matter their race, color, ethnicity, religion, sex (including pregnancy, childbirth, lactation, or related medical conditions), national origin, ancestry, age, marital status, sexual orientation, gender identity and expression, disability, veteran status, military or uniformed service member status, genetic information, or any other status protected by applicable federal, state, local, or international law

Python Data Scientist

SAVE

Latitude, Inc.
Norfolk, VA

Apply on Monster | Apply on LinkedIn | Apply directly on ZipRecruiter | Apply on Ladders | Apply on Tarta

Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- â€¢ Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience
- â€¢ At least 3 years of experience as a data scientist
- â€¢ Educational requirements may be adjusted for applicable work experience
- Work experience may be adjusted for highly specialized knowledge or uniquely applicable experience
- â€¢ Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms
- â€¢ Experience with Python, R, or other data science related tools
- â€¢ Experience querying data from SQL databases
- â€¢ Experience with machine learning, artificial intelligence, neural networks (e.g
- â€¢ Experience with the Linux operating system

Responsibilities

- â€¢ Work across functional teams to identify data capture and analysis requirements
- â€¢ Implement a big data architecture onto NCTE
- â€¢ Design and build analysis capabilities into the architecture
- â€¢ Identify opportunities use cases for supervised and unsupervised learning to expand the use of the big data architecture within NCTE
- â€¢ As needed deliver KPIs and automated reporting to teams supporting the NCTE

- â€¢ Experience with configuration management tools (e.g
- Git, Nexus, Maven)
- â€¢ Experience with the agile software lifecycle
- â€¢ Experience with anomaly detection, time series forecasting, and predictive maintenance
- â€¢ Has a proven ability to learn quickly and works well both independently as well as in a team setting
- â€¢ Experience rapidly scaling data storage and processing
- â€¢ Experience with causal analysis methods for root cause analysis
- â€¢ Experience in Modern Java Frameworks and Libraries (e.g. Spring, Guava)
- â€¢ Experience with data visualization
- â€¢ Experience with web frontend frameworks (e.g. React) and accessing REST APIs
- â€¢ Experience in distributed databases, NoSQL, or Graph databases (e.g.Neo4j or MongoDB) a high plus
- â€¢ Experience in streaming and/or batch analytics (e.g
- Kafka, Spark, Flink, Storm, MapReduce, Hadoop)
- â€¢ Experience implementing a distributed storage system such as HDFS, HBASE etc
- â€¢ Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines

- Must be able to obtain and maintain a Secret clearance
- US Citizenship is required

Full description

Duties:

â€¢ Work across functional teams to identify data capture and analysis requirements
â€¢ Implement a big data architecture onto NCTE.
â€¢ Design and build analysis capabilities into the architecture
â€¢ Collaborate with software engineers on a data-driven predictive maintenance tool
â€¢ Keep up-to-date on current technologies and applications of big data architectures
â€¢ Identify opportunities use cases for supervised and unsupervised learning to expand the use of the big data architecture within NCTE
â€¢ As needed deliver KPIs and automated reporting to teams supporting the NCTE

Required Skills:

â€¢ Bachelor's degree in technical discipline (i.e. data science, computer science, engineering, mathematics, etc.) and 8-10 years of relevant experience
â€¢ At least 3 years of experience as a data scientist
â€¢ Educational requirements may be adjusted for applicable work experience. Work experience may be adjusted for highly specialized knowledge or uniquely applicable experience.
â€¢ Experience in RESTful web services and/or Object Oriented Programming (OOP) paradigms
â€¢ Experience with Python, R, or other data science related tools
â€¢ Experience querying data from SQL databases
â€¢ Experience with machine learning, artificial intelligence, neural networks (e.g. Tensorflow)
â€¢ Experience with the Linux operating system
â€¢ Experience with configuration management tools (e.g. Git, Nexus, Maven)
â€¢ Experience with the agile software lifecycle
â€¢ Experience with anomaly detection, time series forecasting, and predictive maintenance
â€¢ Has a proven ability to learn quickly and works well both independently as well as in a team setting

Desired Skills:

â€¢ Experience rapidly scaling data storage and processing
â€¢ Experience with causal analysis methods for root cause analysis
â€¢ Experience in Modern Java Frameworks and Libraries (e.g. Spring, Guava)
â€¢ Experience with data visualization
â€¢ Experience with web frontend frameworks (e.g. React) and accessing REST APIs
â€¢ Experience in distributed databases, NoSQL, or Graph databases (e.g.Neo4j or MongoDB) a high plus
â€¢ Experience in streaming and/or batch analytics (e.g. Kafka, Spark, Flink, Storm, MapReduce, Hadoop)
â€¢ Experience implementing a distributed storage system such as HDFS, HBASE etc.
â€¢ Experience creating a distributed analytics engine such as DASK or SPARK directly on virtual machines

Must be able to obtain and maintain a Secret clearance. US Citizenship is required

Data Scientist / Data Analytics

SAVE

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SkyePoint Decisions
Virginia Beach, VA

Apply on WANE Jobs | Apply on My High Plains J… | Apply on My Twin Tiers Jobs | Apply on KRON4 Jo

4 days ago | Full-time | Health insurance | Dental insurance

Job highlights

Identified by Google from the original job post

Qualifications

- Bachelor's Degree and a minimum of 5 year experience required
- An additional 4 years of experience may be substituted in lieu of degree
- Possess CND, CySA+, GSEC, Security+ CE, CEH, CISSP, CASP+ or similar certification
- Demonstrated experience providing analytics solutions to detect anomalous activity
- Proven working experience as a data scientist or analyst
- Technical expertise regarding data models, database design development, data mining and segmentation techniques
- Experience writing scripts using Python or similar languages
- Applicants selected for this position will require an active Top Secret clearance, and background screening

Responsibilities

- This role may require on-site support of at least 2-3 days week
- This is a contingent position based upon customer approval and funding
- You will work with a team of like-minded professionals to share and collaborate upon your ideas to improve the cybersecurity infrastructure, architecture, and configuration deployments
- You will become part of SkyePoint's Department of State (DoS) Diplomatic Security Cyber Mission (DSCM) program providing leading cyber and technology security experience to enable innovative, effective and secure business processes
- Create, maintain, and refine data models and algorithms used across the Directorate
- Improve visibility and focus of large data sets to improve anomaly detection

- Identify new security monitoring use cases based on available data
- Implement and support user and threat behavior analytics
- Create cyber threat intelligence conclusions by using data science and analysis (e.g. outlier detection, gap analysis, normalization, machine learning, automated models, natural language processing, etc.) techniques

Benefits

- Great Benefits: >70%-80% of medical premiums cost share paid by SkyePoint, several insurance options including HMO and High Deductible plans with Health Savings Accounts HSAs , Flex Spending Accounts FSAs , Full Dental Plans, ST/LT Disability, Life Insurance, floating federal holiday options, and 401k matched
- Certification Incentive Program
- Paid Referral Program
- Corporate Sponsored Community Engagement (Giving Back) events every quarter
- SkyePoint DoD SkillBridge Industry Partner Fellowship Program
- SkyePoint Professional Growth Programs (Internal Training and Mentoring)
- SkyePoint Professional Sports Ticket Perks, Quarterly Employee Morale Lunches, and Semi-Annual team-building events
- Flexible Work Environment

Full description

Overview

SkyePoint Decisions is a leading Cybersecurity Architecture and Engineering, Critical Infrastructure and Operations, and Applications Development and Maintenance IT service provider headquartered in Dulles, Virginia with operations across the U.S. We provide innovative enterprise-wide solutions as well as targeted services addressing the complex challenges faced by our federal government clients. Our focus is on enabling our clients to deliver their mission most efficiently and effectively - anytime, anywhere, securely. We combine technical expertise, mission awareness, and an empowered workforce to produce meaningful results. This role may require on-site support of at least 2-3 days week.

Responsibilities

This is a contingent position based upon customer approval and funding.

As a SkyePoint employee you will be given the opportunity to support some of our nation's most critical information systems by utilizing not only your existing cybersecurity skills and talents, but those that you will learn in your new role. In your new role as a cyber security professional, you will protect our customer's most sensitive data and complex systems from all forms of threats including cyber-attacks, insider threats, rogue network devices, and malicious software and applications. You will work with a team of like-minded professionals to share and collaborate upon your ideas to improve the cybersecurity infrastructure, architecture, and configuration deployments. Your ideas and contributions will matter.

What can you achieve and how you will make a difference
• You will become part of SkyePoint's Department of State (DoS) Diplomatic Security Cyber Mission (DSCM) program providing leading cyber and technology security experience to enable innovative, effective and secure business processes.
• Create, maintain, and refine data models and algorithms used across the Directorate.
• Improve visibility and focus of large data sets to improve anomaly detection.
• Identify new security monitoring use cases based on available data.
• Implement and support user and threat behavior analytics.
• Create cyber threat intelligence conclusions by using data science and analysis (e.g. outlier detection, gap analysis, normalization, machine learning, automated models, natural language processing, etc.) techniques.

Qualifications

The Talent You Bring with these Qualifications
• Bachelor's Degree and a minimum of 5 year experience required. An additional 4 years of experience may be substituted in lieu of degree.
• Active Top Secret security clearance is required.
• Possess CND, CySA+, GSEC, Security+ CE, CEH, CISSP, CASP+ or similar certification.
• Demonstrated experience providing analytics solutions to detect anomalous activity.
• Proven working experience as a data scientist or analyst.
• Technical expertise regarding data models, database design development, data mining and segmentation techniques.
• Experience writing scripts using Python or similar languages.
Applicants selected for this position will require an active Top Secret clearance, and background screening. Applicants

selected for a security clearance will be subject to a security investigation and must meet eligibility requirement for access to classified information.

What We Can Offer You -
• Great Benefits: >70%-80% of medical premiums cost share paid by SkyePoint, several insurance options including HMO and High Deductible plans with Health Savings Accounts HSAs , Flex Spending Accounts FSAs , Full Dental Plans, ST/LT Disability, Life Insurance, floating federal holiday options, and 401k matched
• Certification Incentive Program
• Paid Referral Program
• Corporate Sponsored Community Engagement (Giving Back) events every quarter
• SkyePoint DoD SkillBridge Industry Partner Fellowship Program
• SkyePoint Professional Growth Programs (Internal Training and Mentoring)
• SkyePoint Azure Development Environment available to all Developers and technical staff to develop solutions for customers and/or to create innovation to win new business
• SkyePoint Professional Sports Ticket Perks, Quarterly Employee Morale Lunches, and Semi-Annual team-building events
• Flexible Work Environment
SkyePoint Decisions is an established ISO 9001:2015 and ISO/IEC 27001:2013 certified small business and appraised at CMMI Level 3 (with SAM) for Services. We possess a common vision of excellence and foster a collaborative team culture built upon individual performance and accountability. We invest in our people and systems to create value for our clients. It is the SkyePoint Way. We are grateful for the opportunity to work with exceptional people and give back to the communities we serve. Our employees value the flexibility at SkyePoint that allows them to balance quality work and their personal lives.

As a federal contractor, SkyePoint is subject to any federal vaccine mandates or other customer vaccination requirements. All new hires are required to report their vaccination status.

SkyePoint Decisions is committed to hiring and retaining a diverse workforce. We are an Equal Opportunity Employer, making decisions without regard to race, color, religion, sex, national origin, age, veteran status, disability, or any other protected class. U.S. Citizenship is required for most positions

Data Analyst

SAVE

BigBear.ai, Inc.
Norfolk, VA

Apply on Ladders Apply on Tarta.ai

$ 80K–100K a year Full-time

Job highlights

Identified by Google from the original job post

Qualifications

- Bachelor's degree in Computer Science, Engineering, or similar technical field or equivalent experience
- Minimum 3+ years of experience with relational database/data analytics
- Familiarity with SQL, Microsoft SQL Server, Databricks, Python (or similar)
- Proficiency with MS Access and Excel
- Clearance: Must possess and maintain an active Secret security clearance
- Active Top Secret Clearance with SCI eligibility
- Experience working in Department of Defense programs
- Experience with Global Force Management processes and programs
- Current experience with GFM applications (DRRS, JOPES, JCRM, ORION)
- CompTIA Security+ certification

Responsibilities

- We are looking for a Data Analyst to help us continue and expand the delivery of high-quality, timely functionality to our government customers
- You will be integral in the aggregation, correlation and analysis of large and complex data sets from various DoD sources
- Collaborate with team members to collect and analyze data
- Structure large data sets to find usable information
- Use graphs, infographics and other methods to visualize data
- Create reports for internal teams and/or external clients
- Work with a team of analysts and other associates to process information
- Perform analysis to assess the quality of the data and screening options
- Process data and information according to strict compliance directives

- A high level of mathematical ability
- Experience leveraging methodologies and processes for managing large-scale databases with strict metadata standards
- Demonstrated experience in handling large data sets and relational databases
- Ability to analyze, model, and interpret data
- Possess a methodical and logical approach to solving problems
- Experience with shifting priorities and meeting deadlines
- Accuracy and attention to detail
- Demonstrated competency with written and verbal communication skills
- About BigBear.ai
- Perform data administration, operations support, Tier 2 and internal customer support

Full description

Job Description

Overview

BigBear.AI has an exciting opportunity for a Data Analyst to join our talented and agile team of forward-thinking engineers, software developers, analysts, and innovators.

Due to the requirement for active, on-site customer engagement and the sensitive nature of our data and applications the work location for this role is in Norfolk, Virginia.

BigBear.AI is one of the fastest growing AI/ML companies in the industry and at the nexus of technology-driven decision support application development supporting the Department of Defense (DoD). Our team relies on Subject Matter Expertise (SME), user community engagement, sensitivity to operations, and world-class software development to deliver a rich, immersive experience that helps our government customers effortlessly gain insights into complex problems, rapidly run scenarios, and make sense of disparate and large datasets being generated across the DoD.

What you will do

We are looking for a Data Analyst to help us continue and expand the delivery of high-quality, timely functionality to our

government customers. You will be integral in the aggregation, correlation and analysis of large and complex data sets from various DoD sources. You will have the opportunity to rapidly learn and influence strategic decisions as you become a Global Force Management (GFM) data SME under the guidance of our Senior Data Scientist. This is an excellent opportunity to get in on the ground floor as we migrate to the cloud environment and capitalize on strategic partnerships that will catapult the program to new heights.

• Collaborate with team members to collect and analyze data
• Structure large data sets to find usable information
• Use graphs, infographics and other methods to visualize data
• Create reports for internal teams and/or external clients
• Work with a team of analysts and other associates to process information
• Perform analysis to assess the quality of the data and screening options
• Process data and information according to strict compliance directives
• Perform data administration, operations support, Tier 2 and internal customer support

What you need to have

• Bachelor's degree in Computer Science, Engineering, or similar technical field or equivalent experience
• Minimum 3+ years of experience with relational database/data analytics
• Familiarity with SQL, Microsoft SQL Server, Databricks, Python (or similar)
• Proficiency with MS Access and Excel
• Clearance: Must possess and maintain an active Secret security clearance

What we'd like you to have

• Active Top Secret Clearance with SCI eligibility
• Experience working in Department of Defense programs
• Experience with Global Force Management processes and programs
• Current experience with GFM applications (DRRS, JOPES, JCRM, ORION)
• CompTIA Security+ certification
• A high level of mathematical ability
• Experience leveraging methodologies and processes for managing large-scale databases with strict metadata standards
• Demonstrated experience in handling large data sets and relational databases
• Ability to analyze, model, and interpret data
• Possess a methodical and logical approach to solving problems
• Experience with shifting priorities and meeting deadlines
• Accuracy and attention to detail
• Demonstrated competency with written and verbal communication skills

About BigBear.ai

A leader in decision dominance for more than 20 years, BigBear.ai operationalizes artificial intelligence and machine learning at scale through its end-to-end data analytics platform. The Company uses its proprietary AI/ML technology to support its customers' decision-making processes and deliver practical solutions that work in complex, realistic and imperfect data environments. BigBear.ai's composable AI-powered platform solutions work together as often as they stand alone: Observe (data ingestion and conflation), Orient (composable machine learning at scale), and Dominate (visual anticipatory intelligence and optimization).

BigBear.ai's customers, which include the U.S. Intelligence Community, Department of Defense, the U.S. Federal

Government, as well as customers in the commercial sector, rely on BigBear.ai's high value software products and technology to analyze information, identify and manage risk, and support mission critical decision making. Headquartered in Columbia, Maryland, BigBear.ai has additional locations in Virginia, Massachusetts, Michigan, and California.

BigBear.ai will request COVID-19 vaccination status information as part of the onboarding process