

# CURRICULUM VITAE

Dec 2011

**NAME:** Ghaith Rabadi, Ph.D.

**TITLE:** Tenured Associate Professor  
Engineering Management and Systems Engineering  
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## EDUCATION:

12/1999	<b>Ph.D. Industrial Engineering</b> University of Central Florida, Orlando Florida
05/1996	<b>M.Sc. Industrial Engineering</b> University of Central Florida, Orlando Florida
08/1992	<b>B.Sc. Industrial Engineering</b> University of Jordan, Amman, Jordan

## EXPERIENCE:

08/2008 – Present	<b>Associate Professor</b> Dept. Engineering Management and Systems Engineering Old Dominion University, Norfolk, VA
01/2007 – 07/2010	<b>Graduate Program Director (GPD)</b> Dept. Engineering Management and Systems Engineering Old Dominion University, Norfolk, VA
08/2002 – 07/2008	<b>Assistant Professor</b> Dept. Engineering Management and Systems Engineering Old Dominion University, Norfolk, VA



## TEACHING

### GRADUATE COURSES: Live and Televised

- ENMA 613: **Logistics & Supply Chain Management** (12 semesters at ODU)  
ENMA 613: **Logistics & Supply Chain Management**  
(Asynchronous CD-ROM for a Navy Program)
- ENMA 603: **Operations Research** (3 semesters at ODU)  
ENMA 703/803: **Optimization Methods** (9 semesters at ODU)  
MSIM 795/895 **Optimization Methods for Modeling & Simulation** (2 semesters)  
ENMA 795/895: **Special Topics: Discrete-Event Simulation** (2 semesters at ODU)  
ENMA 723/823: **Enterprise and Complex System Dynamics** (1 Semester at ODU)  
ENMA 888: **Ph.D. Seminar** (2 semesters at ODU)
- EIN 6425: **Scheduling and Sequencing** (1 Semester, UCF)  
ESI 5219: **Statistics and Probability for Engineers** (3 Semesters, UCF)

### UNDERGRADUATE COURSES: Live

- EIN3314: **Work Measurement: Time & Motion Study** (1 Semester, UCF)

### SHORT COURSES: Live, hands-on training

- Modeling and Simulation:* 3-day short course for Northrop Grumman Newport News,  
Taught 7 times from 2006 to 2010
- Modeling and Simulation:* 3 day short course for SPAWAR, U.S. Navy, Norfolk, Virginia,  
Taught once in 2007
- Operation Scheduling* 3 day short course at Dept Industrial Engineering  
University of Bio-Bio, Concepcion, Chile, Taught twice in  
2002 and 2003
- Data Mining* 10 hour short course as a part of Agile Knowledge  
Management Training taught for Department of The Army  
in Fall 2011

## REFEREED JOURNAL PUBLICATIONS (23 Publications)

- Kaplan, S. and **Rabadi, G.** “A Simulated Annealing and Meta-RaPS Algorithms for the Aerial Refueling Scheduling Problem with Due Date-to-Deadline Windows and Release Time”, **In Press**, *Engineering Optimization*
- Deller, S., **Rabadi, G.**, Tolk, A., and Bowling S. “Organizing for Improved Effectiveness in Networked Operations”, **In Press**, *Military Operations Research Journal (MORS)*
- Bowling, R.S., **Rabadi, G.**, Khasawneh, M., Shearer, N. and Zhang, J. (2012) “Initiative Mapping Methodology for Systems-of-Systems Applications”, *International Journal of Industrial and Systems Engineering*, V. 10, No.1, P. 75 – 95
- Kaplan, S., and **Rabadi, G.** (2012), “Exact and Heuristic Algorithms for the Aerial Refueling Parallel Machine Scheduling Problem with Due Date-to-Deadline Window and Ready Times”, *Computers & Industrial Engineering*, V. 62, No. 1, P. 276 – 285
- Garcia, C. and **Rabadi, G.** (2011) “A Meta-RaPS Algorithm for Spatial Scheduling with Release Times”, *International Journal of Planning and Scheduling*, V. 1, No.1/2, P. 19 – 31
- Garcia, C. and **Rabadi, G.** (2011) “Optimizing Coordinated Multi-Team Volunteer Scheduling: A Combined Constraint Programming and Goal Programming Approach”. *International Journal of Industrial and Systems Engineering* V. 9, No 2, P. 183 – 193
- Arin, A., **Rabadi, G.**, and Unal, R. (2011), “Comparative Studies on Design of Experiments for Tuning Parameters in a Genetic Algorithm for a Scheduling Problem”, *International Journal of Experimental Design and Process Optimisation*, V. 2, No. 2, P. 102 – 124
- Arnaout, J-P, **Rabadi, G.** and Musa, R. (2010) “A Two-stage Ant Colony Optimization to Minimize the Makespan on Unrelated Parallel Machines with Sequence-Dependent Setup Times”, *Journal of Intelligent Manufacturing*, Vol. 21, No. 6, P. 693 – 701
- Keating, C., **Rabadi, G.**, Landaeta, R. and Bowling, S. R. (2009) "System of Systems Engineering for Border Security and Immigration: Methodologies, Processes, & Tools", *International Journal of System of Systems Engineering*, Vol. 1, No. 4, P. 414 – 444
- Deller, S.T., Bell, M.I., Bowling, S.R., **Rabadi, G.**, and Tolk, A. (2009) “Applying the Information Age Combat Model: Quantitative Analysis of Network Centric Operations”, *The International Command and Control (C2) Journal*. Vol. 3, No. 1
- Tolk, A., **Rabadi, G.**, Merino, D. (2009) “Embedding Simulation Education into the Engineering Management Body of Knowledge”, *International Journal of Simulation and Process Modelling*, Vol. 5, No. 1, p. 14 – 19

- Arnaout, J-P and **Rabadi, G.** (2008) “Rescheduling of Unrelated Parallel Machines Under Machine Breakdowns”, *International Journal of Applied Management Science*, Vol. 1, No. 1, P. 75 – 89.
- Landaeta, R., Mun, J., **Rabadi, G.**, and Levin, D. (2008), “Identifying Sources of Resistance to Change in Healthcare”, Vol. 9, No. 1, P. 74 – 95, *International Journal of Healthcare Technology and Management (IJHTM)*
- Kaylani, A., Mollaghasemi, M., Cope, D., Fayez, S., **Rabadi, G.**, Steele, M. (2008). “A generic environment for modelling future launch operations—GEM-FLO: a success story in generic modelling”, *Journal of the Operational Research Society*, Vol. 59, No.10, P. 1312-1320
- Arnaout, J-P and **Rabadi, G.** (2007), “Predictable Scheduling With Learning Capability for The Unrelated Parallel Machine Problem”, *International Journal of Operations & Quantitative Management*. Vol. 13, No. 2, P. 115 – 127
- Rabadi, G.**, Anagnostopoulos, G., and Mollaghasemi, M. (2007), “A Heuristic Algorithm for The Just-In-Time Single Machine Scheduling Problem With Setups: A Comparison With A Simulated Annealing”, *The International Journal of Advanced Manufacturing Technology*, Vol. 32, No. 3-4, P. 326 – 335.
- Abuhilal, L., **Rabadi, G.**, and Sousa-Poza, A. (2006), “Supply Chain Inventory Control: A Comparison Among JIT, MRP, and MRP with Information Sharing Using Simulation”, *Engineering Management Journal*, Special Issue on Supply Chain management, Vol. 18, No. 2, p. 51 – 57
- Helal, M., **Rabadi, G.**, Al-Salem, A., (2006) “A Tabu Search Algorithm to Minimize the Makespan for Unrelated Parallel Machines Scheduling Problem with Setup Times”, *International Journal of Operations Research*, Vol. 3, No. 3, P. 182 – 192.
- Rabadi, G.**, Moraga, R., and Al-Salem, A. (2006), “Heuristics for the Unrelated Parallel Machine Scheduling Problem with Setup Times”, *Journal of Intelligent Manufacturing*, Vol. 17, p. 85 – 97.
- Arnaout, J-P, **Rabadi, G.**, and Mun, J. (2006) “A Dynamic Heuristic for the Stochastic Unrelated Parallel Machine Scheduling Problem“, Special Issue special issue on Scheduling in Manufacturing, Information, and Service Industries, *International Journal of Operations Research*, Vol. 3, No.2, P. 136 – 143.
- Duwayri, Z., Mollaghasemi, M., Nazzal, D., and **Rabadi, G.** (2006), “Scheduling Setups Changes at Bottleneck Facilities in Semiconductor Manufacturing”, Special issue on semiconductor manufacturing in *Production Planning and Control Journal*,. Vol. 17, No. 7, P. 717 – 727
- Rabadi, G.**, Mollaghasemi, M., and Anagnostopoulos, G.C., (2004) “A Branch-and-Bound Algorithm for the Early/Tardy Machine Scheduling Problem with a Common Due-Date and Sequence-Dependent Setup Time”, *Computers & Operations Research Journal*, Vol. 31, No. 10, p. 1727-1751

Keating, C., Rogers, R., Unal, R., Dryer, D., Sousa-Poza, A., Safford, R., Peterson, W., **Rabadi, G.** (2003), "System of Systems Engineering", *Engineering Management Journal*, Vol. 15, No. 3, p.36-45.

## BOOK CHAPTERS

**Rabadi, G.**, Pinto, C.A., Talley, W., and Arnaout, J-P (2007), "Port Recovery from Security Incidents: A Simulation Approach", Chapter 5 (p. 83 – 94) in Bichou, Bell & Evans: Risk Management in Port Operations, Logistics and Supply Chain Security, INFORMA/Lloyd's List Publishing, London, UK.

Pinto, C. A., **Rabadi, G.**, Talley, W. K., (2008) "Chapter 12: Port Security in the US", a Chapter in edited book entitled "Maritime Safety, Security and Piracy", edited by W.K. Talley, P. 219 – 235, INFORMA LLP., London, U.K.

## PEER REVIEWED RESEARCH CONFERENCE PAPERS (36 Papers)

Kaplan, S., and **Rabadi, G.** (2010). "Aerial Refueling Process Rescheduling Under Job Related Disruptions", Proceedings of the Modeling and Simulation (MODSIM) World 2010 Conference, Hampton, VA, Oct 13-15, 2010

Kaplan, S., Arin, A., and **Rabadi, G.** (2010) "Meta-Raps Algorithm for Aerial Refueling Process Scheduling Problem", Proceedings of the Modeling and Simulation (MODSIM) World 2010 Conference, Hampton, VA, Oct 13-15, 2010

**Rabadi, G.** and Kaylani, H. (2010), "[Towards a Center for Modeling and Simulation: The Case for Jordan](#)" in Barjis, J., Narasipuram, M.M., & **Rabadi, G.** (Eds.) (2010). Proceedings of the 6th International Workshop on Enterprise & Organizational Modeling and Simulation, Hammamet, Tunisia. CEUR-WS, Volume 601, ISSN: 1613-0073, P. 99 - 112

Arnaout, G., Rodriguez-Velasquez, E., **Rabadi, G.**, Musa, R. (2010), "[Modeling Cross-Docking Operations using Discrete Event Simulation](#)", in Barjis, J., Narasipuram, M.M., & **Rabadi, G.** (Eds.) (2010), Proceedings of the 6th International Workshop on Enterprise & Organizational Modeling and Simulation, Hammamet, Tunisia. CEUR-WS, Volume 601, ISSN: 1613-0073, P. 113 – 120

- Rodriguez-Velasquez, E., Arnaout, G., **Rabadi, G.** and Musa, R. (2010) "Modeling cross-dock networks with time constraints using simulation", Proceedings of The IEEE Systems and Information Engineering Design Symposium (SIEDS'10), Charlottesville, Virginia, P. 52 – 56
- Shearer, N., Khasawneh, M., Jun Zhang, Bowling, S., and **Rabadi, G.** (2010), "Sensitivity Analysis of a large-scale system dynamics immigration model", Proceedings of The IEEE Systems and Information Engineering Design Symposium (SIEDS'10), Charlottesville, Virginia, P. 78 – 81.
- Arin, A., **Rabadi, G.**, and Unal, R. (2009), "Tuning Parameters In Heuristics By Using Design Of Experiments Methods", Proceedings of Modeling and Simulation (MODSIM) World 2009 Conference & Expo, October 14 -16, 2009, P. 73 – 78, Virginia Beach, VA
- Garcia, C. and **Rabadi, G.** (2009) "Optimization Model for Scheduling Problems with Two-Dimensional Spatial Resource Constraints", Proceedings of Modeling and Simulation (MODSIM) World 2009 Conference & Expo, October 14 -16, 2009, P. 307 – 312, Virginia Beach, VA
- Deller, S., **Rabadi, G.**, Bell, M., Bowling, S., Tolk, A. (2009), "Modeling the Information Age Combat Model: An Agent-Based Simulation of Network Centric Operations", Proceedings of Modeling and Simulation (MODSIM) World 2009 Conference & Expo, October 14 -16, 2009, P. 9 -15, Virginia Beach, VA
- Rabadi, G.**, Bowling, S. R., Keating, C., and Unal, R. (2009), "Sensitivity Analysis Framework for Large and Complex Simulation Models", the Proceedings of the 2009 Summer Computer Simulation Conference, July 13 -16, 2009, Istanbul, Turkey.
- Derbes, D., **Rabadi G.**, and Musa, R. (2009) "Transportation Problem for a Cross-Dock Network with Time Constraints", the Proceedings of the Industrial Engineering Research Conference, Miami, FL, 2009, P.1393 – 1398.
- Arnaout, J-P, Musa, R., and **Rabadi, G.** (2008) "Ant Colony Optimization Algorithm to Parallel Machine Scheduling Problem with Setups", *Proceeding of the 4<sup>th</sup> IEEE Conference on Automation Science and Engineering (CASE)*, Washington DC, August 23 – 26, 2008, P. 578 – 582.
- Bowling, S. R., **Rabadi, G.**, Keating, C. (2006), "An Integrated Framework for Modeling and Simulation of the U.S. Southern Border: A Border Patrol Perspective", *Proceedings of the Industrial Engineering Annual Conference*, Orlando, Florida, May 20 – 24, 2006.
- Rabadi, G.**, Pinto, C.A., Talley, W.K., and Arnaout, J.P. (2006) "Port Recovery from Security Incidents: A Simulation Approach", in the Proceedings of the

*International Workshop on Risk Management in Port Operations, Logistics, and Supply Chain Security*, London, UK.

- Taslicali, A., Landaeta, R., Unal, R., & **Rabadi, G.** (2006) "Understanding Managerial Differences and Similarities between AHP and ANP: An Empirical Study," in the *Proceeding of the 26<sup>th</sup> National Conference of the American Society for Engineering Management*.
- Nazikkol, S., Landaeta, R., Unal, R., & **Rabadi, G.** (2006) "An Empirical Investigation of the Effectiveness of Crisis Management Strategies," *Proceeding of the 26<sup>th</sup> National Conference of the American Society for Engineering Management*.
- Lepsch, RA., Chytka, TM., Morris, WD., Reeves, JD., **Rabadi, G.** (2005), "Launch Vehicle Economic Evaluation Using Discrete Event Simulation Based Methodology", *Proceedings of the AIAA Space 2005 Conference*, Long Beach, California.
- Arnaout, J-P., and **Rabadi, G.** (2005), "Minimizing the Total Weighted Completion Time on Unrelated Parallel Machines with Stochastic Times", In M. E. Kuhl, N. M. Steiger, F. B. Armstrong, and J. A. Joines, (eds.), *Proceedings of the 2005 Winter Simulation Conference*, p. 2141 – 2147, Orlando, FL.
- Correa-Martinez, Y.C. Bedoya-Valencia, L., Arnaout, J-P., **Rabadi, G.**, Ardalan, A. (2005), "Scheduling Policies In An Assembly Environment With Earliness and Tardiness", *Proceeding of the 26<sup>th</sup> National Conference of the American Society for Engineering Management*, p. 156 – 161., Virginia Beach, VA
- Lokesh, P., **Rabadi, G.**, Magary, M. (2005), "A Web-Based Software Application for the ASEM 2005 Conference", *Proceeding of the 26<sup>th</sup> National Conference of the American Society for Engineering Management*, p.236 – 242, Virginia Beach, VA.
- Rabadi, G.**, Chytka, T. Morris, W.D., White, N., Unal, R. (2004) "Architectural Simulation Model for Operations of Future Launch Systems", *Proceeding of the 25<sup>th</sup> National Conference of the American Society for Engineering Management*, p. 283 – 289, Alexandria, VA
- Mun, J.H., **Rabadi, G.**, Levin, D., Bogue, V., McKenna, T., and Vergara, J., (2004) "Smoothing the Patient Flow within Healthcare System", *Proceeding of the 25<sup>th</sup> National Conference of the American Society for Engineering Management*, p. 363 – 367, Alexandria, VA
- Tsoy, G., Arnaout, J-P, Smith, T., and **Rabadi, G.** (2004), "A Genetic Algorithm Approach for Surgical Operating Rooms Scheduling Problem, *Proceeding of the 25<sup>th</sup> National Conference of the American Society for Engineering Management*, p. 299 – 304, Alexandria, VA

- Keating, C, Peterson, W., and **Rabadi, G.** (2003), "Framing of Complex System of Systems Engineering Problems", *Proceeding of the 24<sup>th</sup> National Conference of the American Society for Engineering Management*, p8-15, St. Louis, Missouri.
- Bedoya, L., and **Rabadi, G.**, Sousa-Poza, A., Keating, C., Peterson, W. (2003), "A Tabu Search Approach for the Job Shop Scheduling Problem with Earliness and Tardiness", *Proceeding of the 24<sup>th</sup> National Conference of the American Society for Engineering Management*, p420-425, St. Louis, Missouri.
- Bedoya, L., and **Rabadi, G.**, (2003), "A Multi-agent Approach for the Job Shop Scheduling Problem with Earliness and Tardiness", *Proceeding of the IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC)*, p 1217-1222, Washington D.C.
- Rabadi, G.**, Anagnostopoulos, G.C., and Mollaghasemi, M. (2002) "A Simulated Annealing Algorithm for a Scheduling Problem with Setup Times", *Proceeding of Industrial Engineering Research Conference*, Orlando, Florida.
- Anagnostopoulos, G.C., and **Rabadi, G.** (2002) "A Simulated Annealing Algorithm for the Unrelated Parallel Machine Scheduling Problem", *Proceeding of the World Automation Congress (WAC)*, Orlando, Florida.
- Sousa-Poza, A., Keating, C., Peterson, W., and **Rabadi, G.** (2002) "Boundary Setting: Inherent Problems and Solutions for an ISO 9001 Based Quality Management System", *Proceeding of the 23<sup>rd</sup> Annual American Society for Engineering Management*, Tampa, Florida, pp. 162-168.
- Moraga, R. and **Rabadi, G.** (2002) "Application of Simulated Annealing to Parallel Machine Scheduling Problems: A Literature Review", *Proceeding of the Latin-Iberian American Congress of Operations Research (CLAIO)*, Concepción, Chile.
- Cates, G. R., Steele, M. J., Mollaghasemi, M., and **Rabadi, G.** (2002). "Modeling the Space Shuttle". In E. Yücesan, C.-H. Chen, J. L. Snowdon, and J.M. Charnes (eds.), *Proceedings of the 2002 Winter Simulation Conference*, 754-762.
- Steele, M. J., Mollaghasemi, M., **Rabadi, G.**, and Cates, G. R. (2002). "Generic Simulation Models of Reusable Launch Vehicles". In E. Yücesan, C.-H. Chen, J. L. Snowdon, and J. M. Charnes (eds.), *Proceedings of the 2002, Winter Simulation Conference*, 747 – 753.
- Rabadi, G.** (2001) "Application of Constraint Programming to a Scheduling Problem with a Common Due Date and Setup Times", *Proceeding of the 1<sup>st</sup> International Industrial Engineering Conference*, Amman, Jordan pp. 275-284.

- Duwayri, Z., Mollaghasemi, M., **Rabadi, G.**, and Nazzal, D. (2001) "Dispatching Rule to Schedule Setup Changes at Bottleneck Facilities in Semiconductor Fabs", *Proceeding of the 1<sup>st</sup> International Industrial Engineering Conference*, Amman, Jordan, pp. 233-240.
- Kaylani, A., and **Rabadi, G.** (2001) "Application of Industrial Engineering Practices to Software Development Using Database Representation of the Software Process", *Proceeding of the 1<sup>st</sup> International Industrial Engineering Conference*, Amman, Jordan, pp. 425-432.
- Cates, G., Mollaghasemi, M., **Rabadi, G.**, and Steele, M. (2001) "Macro-Level Simulation Model of Space Shuttle Processing", *Military, Government and Aerospace Simulation Proceeding*, Part of 2001 *Advanced Simulation Technologies Conference*, Sponsored by The *Society for Computer Simulation International (SCS)* Vol. 33, No. 4, pp. 143-148.
- Salem, A., Anagnostopoulos, G.C., and **Rabadi, G.** (2000) "A Branch-and-Bound Algorithm for Parallel Machine Scheduling Problems", *Proceeding of Harbour, Maritime & Multimodal Logistics Modeling and Simulation Workshop*, a publication of the *Society for Computer Simulation International (SCS)*, Portofino, Italy, pp. 88-93.
- Mollaghasemi, M., **Rabadi, G.**, Cates, G., Correa, D., Steele, M., and Shelton, D. (2000) "Simulation Modeling and Analysis of Space Shuttle Flight Hardware Processing", *Proceeding of Harbour, Maritime & Multimodal Logistics Modeling and Simulation Workshop*, a publication of the *Society for Computer Simulation International (SCS)*, Portofino, Italy, pp. 59-62.

## AWARDS AND CREATIVE WORK:

1. **Fulbright Specialist Program Award** (2008), "Business Plan Development for a Center for Modeling and Simulation in Jordan", in Collaboration with the German-Jordanian University, June – July, 2008, Amman, Jordan.
2. **NASA Board Action Invention Award** (2007) granted by NASA administrator Michael Griffin for the invention of "a *Generic Simulation Environment for Modeling Future Launch Operation (GEM-FLO)*", NASA Case No. KSC-12488
3. **NASA Software Invention Award** (2006) granted by NASA administrator Michael Griffin for the "*Space Shuttle Macro-Level Discrete-Event Simulation Model*", NASA Case No. KSC-12497.
4. Recognized by **NASA's** administrator Mr. Sean O'Keefe in 2005 for the creative development of a technical innovation that has been approved for publication as a NASA tech brief entitled: "*a Generic Simulation Environment for Modeling Future Launch Operation (GEM-FLO)*"

## TECHNICAL REPORTS: (9 Reports)

**Rabadi, G.**, Bowling, S. R., and Keating, C. (2007) "Sensitivity Analysis for the Secure Border Initiative System Dynamics Simulation Model", grant # 763641, Agency: MITRE and DHS – Phase I, Pages: 21, Figures: 6, Tables: 9.

Konwin, K., Keating, C., **Rabadi, G.**, and Bowling, S. (2007) "Risk-Based Capability Assessment for the Secure Border Initiative System Dynamics Simulation of Immigration to the U.S.", grant # 763641, Agency: MITRE and DHS, Pages: 18, Figures: 6, Tables: None.

Keating, C. and **Rabadi, G.** (2007) "System of Systems Engineering for Border Security and Immigration: Methodologies, Processes and Tools", grant # 775021, Agency MITRE and DHS, Pages: 49, Figures: 6, Tables: 6.

Bowling, S.R., **Rabadi, G.**, Keating, C. (2007), "Sensitivity Analysis for the Secure Border Initiative System Dynamics Immigration Model", Agency MITRE and DHS — Phase II , Pages: 83, Figures: 71, Tables: 47.

**Rabadi, G.**, (2006) "The Border Control Simulation Learning Environment (*BSim*)", Technical Report, grant # 247591, Dept. Homeland Security, Pages: 26, Figures: 19, Tables 1.

Pinto, C. A., **Rabadi, G.**, Talley, W., and Arnaout, J-P (2006), "Security Risk Analysis of Norfolk International Terminals", Final Report for grant #560011, Agency: Virginia Port Authority, Pages: 20, Figures: 4, Tables: 2.

**Rabadi, G.**, (2005) "Development of the Architectural Simulation Model for Future Launch Systems and Its Application To an Existing Launch Fleet", Final report for grant #140435, Agency: NASA, Pages: 24, Figures: 4, Tables: 5.

Unal, R., and **Rabadi, G.** (2003) "Development of A Simulation Approach For Launch Vehicle Operations & Support Assessment", Final report for grant #124161, Agency: NASA, Pages: 20, Figures:4, Tables: 3, References: 6.

**Rabadi, G.**, (2003) "A Discrete-Event Simulation Model to Assess Operations and Support Cost of Launch System Architectures" Final report for NASA/ASEE Faculty Fellowship Program, Agency: NASA, Pages: 13, Figures:4, Tables: 3.

## PUBLISHED ABSTRACTS (13 Abstracts)

- Rabadi, G., Hancerliogullari, G., Al-Salem, A. (2011) "Approximate Algorithms for Aircraft Arrival and Departure Scheduling over Multiple Runways, INFORMS 2011, Charlotte, North Carolina
- Pinto, C. A., **Rabadi, G.**, Talley, W., and Arnaout, J-P (2006) "Risk, Resiliency, and Port Security: A framework Towards Continuity of Competitiveness in Port Operations, *Annual Meeting of the Society for Risk Analysis*, December 3-6, 2006 Baltimore, Maryland
- Rabadi, G.**, Bouchard, J., Keever, J., Crouch, K., Verdery, S., (2006), Panel on "Modeling & Simulation Scenarios for Maritime and Transportation Security", in *Merging the Study of Maritime Trade and Security Workshop*, Hampton, Virginia.
- Rabadi, G.** (2005) "[Development of the Architectural Simulation Model for Future Launch Systems and its Application to an Existing Launch Fleet](#)", Presented at NASA Langley Research Center.
- Rabadi, G.** (2004) "Operational Simulation Modeling for Architectures of Future Space Launch Vehicles, *The 6<sup>th</sup> Annual Industrial Engineering Simulation Solution Conference (IE SimSol)*, Orlando, Florida
- Bedoya, L., Correa, Y., and **Rabadi, G.** (2004) "Dynamic Scheduling in Assembly Flow Shop Environments Considering Earliness and Tardiness", *INFORMS Denver*, Colorado.
- Rabadi, G.** (2003) "A Discrete-Event Simulation Model to Assess Operations and Support Cost of Launch System Architectures", *NASA Faculty Fellowship Program Finalist Presentation* in the Best Research Presentation Competition.
- Rabadi, G.**, Mollaghasemi, M., Cates, G., and Steele, M. (2001) "A Discrete-Event Simulation Model for the Space Shuttle Ground Processing Operations at Kennedy Space Center, *Simulation and Modeling for Acquisition, Requirements and Training (SMART) Conference*, Orlando, Florida.
- Rabadi, G.**, Salem, A., and Anagnostopoulos, G.C. (2001) "A Branch-and-Bound for a Parallel Machine Scheduling Problem with Setup Times", *INFORMS Miami*, Florida.
- Rabadi, G.**, and Mollaghasemi, M. (2000) "A New Heuristic for the Ion Implanters Scheduling Problem in a Semiconductor Wafer Fabrication Plant", San Antonio, Texas

**Rabadi, G.**, and Mollaghasemi, M. (1999) "A New Heuristic to Solve the Early/tardy Problem with Sequence-Dependent Setup Times", INFORMS Cincinnati, Ohio.

**Rabadi, G.**, and Mollaghasemi, M. (1999) "A New Branch-and-Bound Algorithm to Solve the Just-In-Time Scheduling Problem", INFORMS Philadelphia, Pennsylvania.

**Rabadi, G.**, and Mollaghasemi, M. (1998) "Determination of Optimal Due Dates & Sequence to Minimize Earliness & Tardiness with Sequence-Dependent Setup Times", INFORMS Montreal, Canada.

**Rabadi, G.**, and Mollaghasemi, M. (1997) "Application of Genetic Algorithm to the Early/Tardy Problem with Sequence-Dependent Setup Times", INFORMS San Diego, California.

## **GRANTS AWARDED: (Total of \$2,336,407)**

### **Primary Investigator (Total of \$ 324,538)**

**Rabadi, G.**, "Database Development for STIHL's Guide Bar Facility", Agency: **STIHL Inc.**, October 2009 – December 2009, **Amount \$6,900**

**Rabadi, G.**, and Bowling, S., "Process Modeling and Scheduling at Northrop Grumman Shipbuilding", Agency: **Northrop Grumman Shipbuilding**, September 2008 – June 2009, **Amount: \$86,520** (This contract was stopped due to shortage in funding)

**Rabadi, G.** Keating, C., Bowling, S., Landaeta, R., Earnest, D., Unal, R., "System-of-Systems Engineering Modeling and Analysis for the Secure Border Initiative (SBI)", Agency: **MITRE Corporation** (funded by the Department of Homeland Security), June 2007 – September 2007, **Amount: \$145,000**, Contract No.: 775021.

**Rabadi, G.** and Ardalan, A. (Co-Primary Investigator, Collaborator from the College of Business, ODU), "A Simulation-based Cost Modeling for Assembly Flow Shop Just-In-Time Problems", Agency: Office of Research at Old Dominion University, May 2005 – August 2005, **Amount: \$11,000**, Contract No.:992001

**Rabadi, G.**, "Research Extension of The Architectural Simulation Model for Existing and Future Launch Systems", Agency: **NASA Langley Research Center**, July 2004-February 2005, **Amount: \$28,118**, Contract No.: 140453 (extension)

**Rabadi, G.**, "Operation and Support Cost Assessment Research Based on an Architectural Simulation Model for Future Launch Systems", Agency: **NASA Langley Research Center**, October 2003-February 2004, **Amount: \$35,000**, Contract No.: 140453

**Rabadi, G.**, “NASA/ASEE Faculty Fellowship”, Agency: **NASA** Langley Research Center, June 2003-August 2003, **Amount: \$12,000**, Contract No.: 131941

**Co-Primary Investigator (Total of \$2,006,107)**

Ghoniem, A., **Rabadi, G.**, Sherali, H., and Al-Salem, A. “Integrated Modeling and Optimization Approaches for Airport Terminal Area Management”, Funding Agency: **Qatar Foundation**, December, 2010 – December, 2012, **Amount: \$493,033**

Bowling, S., **Rabadi, G.**, Landaeta, R., Pazos-Lago, M., Daniels, C., Pinto, C., Kady, R., and Hester, R. “The Usefulness of Mini Lectures Supplements in an Online Teaching Environment”, Faculty Innovator Grant, Agency: Center for Learning Technologies at ODU, 2010, **Amount: \$3,000.**

Kady, R., **Rabadi, G.**, Bowling, S., Robertson, J., and Mielke, R., “The Development of Modeling and Simulation Engineering Courses in Support of Modeling and Simulation Graduate Program”, Agency: **Boeing**, January 2009 – December 2009, **Amount: \$100,000**, Contract No.: 793151

Landaeta, R., **Rabadi, G.**, Watson-Papelis, G., Daniels, C., Bowling, S., Pazos, P. “Deployment and Evaluation of a Customized Project Management Development Program for the US Army Core of Engineers-Norfolk District (USACE-NAO) (Phase III). Agency: **Army Corps of Engineers—Norfolk District**, January 2010 – May 2010, **Amount: \$60,330.**

Landaeta, R. **Rabadi, G.**, Watson-Papelis, G., Daniels, C., Bowling, S., Pazos, P. “Design of a Customized Project Management Development Program for the US Army Core of Engineers-Norfolk District (USACE-NAO) (Phase II)”. April 2009-December 2009. Agency: **Army Corps of Engineers—Norfolk District**, **Amount: \$77,282**

Bowling, S. (PI), **Rabadi, G.**, Keating, C., Landaeta, R., Earnest, D., “System-of-Systems Engineering Modeling and Analysis for the Secure Border Initiative (SBI)-Phase II”, Agency: **MITRE** Corporation (funded by the Department of Homeland Security), October 2007 – March 2008, **Amount: \$130,000**, Contract No.: 781681.

Keating, C., (PI), **Rabadi, G.**, Sousa-Poza, A., and Bowling, S.R., “System-of-Systems Engineering Analysis for the Secure Border Initiative (SBI)”, Agency: **MITRE** Corporation funded by the Department of Homeland Security, March 2006 – March 2007, **Amount: \$228,580**, Contract No.: 763641

Pinto, C. (PI), **Rabadi, G.**, and Talley, W., “Security Risk Analysis of Norfolk International Terminal (NIT)”, Agency: **Virginia Port Authority**, October 2005 – September 2006, **Amount: \$110,000**, Contract No.: 560011

Keating, C. (PI), Loftin, B., Sousa-Poza, A., **Rabadi, G.**, Mun, J., and Landaeta, R., “The Department of Homeland Security Border System-of-Systems Engineering Analysis”, Agency: **Department of Homeland Security** through NAVAIR, October 2004 – March 2006, Amount: \$848,736 (ODU’s amount: **\$819,212**), Contract No.: 247591

Earnest, D. (Department of Political Science & Geography – PI) and **Rabadi, G.**, “Faculty Innovator Grant” for developing an Agent-based simulation graduate course entitled *Beyond the Butterfly Effect: An Introduction to Simulation.*, Agency: Center for Learning Technologies at ODU, 2006, **Amount: \$3,000.**

Mun, J. (PI) and **Rabadi, G.** “*Flow Management Research for Sentara Leigh Hospital*”, Agency: **Sentara** Leigh Hospital, October 2003-June 2004, **Amount: \$10,000**, Contract No.: 741191

Unal, R. (PI) and **Rabadi, G.**, “*Development of A Simulation Approach for Launch Vehicle Operations and Support Assessment*”, Agency: **NASA** Langley Research Center, September 2002-May 2003, **Amount: \$32,000**, Contract No.: 124161

## GRANTS UNDER REVIEW / NOT FUNDED:

**Rabadi, G.** (PI), Handy, F. (University of Pennsylvania), and Chris Garcia (University of Mary Washington), “Robust Analytics for Volunteer Planning and Scheduling”, Agency: National Science Foundation, Requested amount: \$346,000, **Under Review**, Service Enterprise Systems Program

**Rabadi, G.**, (PI) “Optimization Models and Algorithms for Spatial Scheduling”, Agency: National Science Foundation, Requested amount: \$266277, submitted in Oct 2009 to the Operations Research Program (Not Funded)

**Rabadi, G.**, and Earnest, D., “Understanding Immigrant Incorporation Through Simulation”, Agency: Russell Sage Foundation, 2007, Amount: \$107,759, Proposal number 07-373 (Not Funded)

## RESEARCH AND MANUSCRIPTS IN PROGRESS:

Garcia, C. and **Rabadi, G.**, “Exact and approximate methods for parallel multiple-area spatial scheduling with release times”, in Second Review, *OR Spectrum*

Isik, O., Unal, R., Kaylan, A., and **Rabadi, G.**, “An Integrated Probability Based Approach for Multiple Response Surface Optimization”, Under Second Review, Applied Stochastic Models in Business and Industry

Bedoya-Valencia, L. and **Rabadi, G.** “A Combinatorial auction-based approach for the Job Shop Scheduling Problem with earliness and tardiness over a common due date”, in progress

Arnaout, J-P, Musa, R. and **Rabadi, G.** “An Enhanced Ant Colony Optimization Algorithm for the Unrelated Parallel Machines with Sequence-dependent Setup Times”, in progress

Bedoya-Valencia, L. and **Rabadi, G.**, “Exact And Heuristic Algorithms for the Two-Machine Just-In-Time Job Shop Scheduling Problem” In Progress

Rodriguez-Velasquez, E., **Rabadi, G.**, Alvarez-Bermudez, W., “Characterization of Optimal Solutions for the Two-Machine Permutation Flowshop Problem”, In Progress

## PH.D. STUDENTS ADVISED

Jean-Paul Arnaout, Assistant Professor, Industrial and Mechanical Eng. Dept, Lebanese American University, Graduated in Fall, 2006

Dissertation: A Robust Reactive Scheduling System with Application to Parallel Machine Scheduling

Leonardo Bedoya-Valencia, Assistant Professor, Department of Engineering, Colorado State University – Pueblo, Graduated in Fall, 2007

Dissertation: Exact and Heuristic Algorithms for the Job Shop Scheduling Problem with Earliness and Tardiness Over a Common Due Date

Okay Isik, Lieutenant Colonel, the Turkish Airforce Academy, Istanbul, Turkey, Graduated in Fall 2009

Dissertation: An Integrated Probability-Based Approach for Multiple Response Surface Optimization

Sean Deller, Lieutenant Colonel, U.S. Army, Graduated in Summer 2009

Dissertation: Towards the Quantitative Analysis of the Connectivity Value of Networked Operations

Chris Garcia, Assistant Professor, College of Business, University of Mary Washington, Graduated in Fall 2010

Dissertation: Optimization Models and Algorithms for Spatial Scheduling

Sezgin Kaplan, Captain in Turkish Airforce Academy, Istanbul, Turkey, Graduated in Spring 2011

Dissertation: Optimization Models And Approximate Algorithms For The Aerial Refueling Scheduling And Rescheduling Problems

Elkin Rodriguez, Assistant Professor, University of Columbia, Columbia, Graduated in Summer 2011

Dissertation: Random Keys Genetic Algorithm Scheduling and Rescheduling System for Common Production Systems

## **M.S. STUDENTS ADVISED**

Emrah Koksalmis, Turkish Airforce Academy, Graduated in Spring 2011

Thesis: Examination Timetabling With Mathematical Programming: An Application in Turkish Air Force Academy

Galina Tsoy, Graduated in Fall 2004

Thesis: Process Improvement in Healthcare

## **HONORS, AWARDS AND PRIZES:**

1. Nominated by the Chair of the Engineering Management Department and Systems Engineering for the SCHEV Outstanding Faculty "Teaching with Technology" award in 2006. (SCHEV is State Council of Higher Education for Virginia)
2. Nominated by the Institute of Industrial Engineers for New Faces in Engineering" at the National Engineers Week in 2004
3. NASA/ASEE Faculty Fellowship in 2003: Worked at NASA Langley for 3 months
4. Nominated for the *Best Research Presentation Competition* during the NASA/ASEE Faculty Fellowship Program in 2003 (number of nominees was 5 out of 40 fellows)
5. Lucent Technologies Industrial Fellowship: 3 years of support for Ph.D. program, 1996 – 1999
6. Honeywell Leadership Scholarship, 1998
7. Nominated by the University of Central Florida for the *IIE Graduate Research Award* in 1996

## **MEMBERSHIP IN PROFESSIONAL SOCIETIES:**

- Epsilon Mu Eta, Charter Member, National Engineering Management Honor Society
- Member of American Society of Engineering Management (ASEM)
- Member of Institute for Operations Research and the Management Sciences (INFORMS)
- Member of INFORMS Optimization Society
- Member of INFORMS Computing Society
- Member of Institute of Industrial Engineers (IIE)

- Member of American Society for Engineering Education (ASEE)
- Member of International Society of Interdisciplinary Scheduling (ISIS)

## UNIVERSITY SERVICE:

- **Graduate Program Director** at the Department of Engineering Management and Systems Engineering for 01/2007 – 7/2010
- Alternate Representative of the College of Engineering and Technology to Graduate Administrator Council (GAC) for 2007 – 2010
- Member of the Scholarship Committee at ODU for the College of Engineering, 2010
- Member of ODU's Faculty Senate for 2005 – 2007 representing the Department of Engineering Management and Systems Engineering, and the Department of Aerospace Engineering.
- Member of the Graduate Program Directors Committee for the College of Engineering, 1/2007 – 7/2010
- **Chair** of the Faculty Development Fund Award for the College of Engineering, Fall 09 – Present
- Member of the Engineering Management and Systems Engineering Dept. Chair Counsel , Fall 2008 – Present
- Member of the Promotion and Tenure committee at the Department of Engineering Management and Systems Engineering, Fall 2008 – Present
- Designed and implemented an admission process for the **Doctor of Engineering** program at the Department of Engineering Management and Systems Engineering at Old Dominion University
- Developed with the help of a graduate student a Graduate Student Status Tracking Database using MS-Access. The DB is used to collect statistics on the different millstones that students go through in a graduate program (coursework, candidacy, proposal, defense, etc)
- Developed with the help of graduate students a Web-based Database for the Alumni of Engineering Management and Systems Engineering Department.
- Member of the Curriculum Committee at the Department of Engineering Management and Systems Engineering at ODU.
- Served and currently serving on several M.S. thesis and Ph.D. dissertation committees at Department of Engineering Management and Systems Engineering at ODU.

- Reviewer for the Graduate Teaching Assistant Instructor (GTAI) Institute at ODU, Fall 2007 – present
- Was in charge of identifying the necessary technology equipment for the *National Centers for Systems of Systems Engineering* (NCSSOE) lab. This was a major volunteered effort in Spring and Summer 2005. The expenditure for this project was more than \$140,000.
- Member of several Faculty Search Committee including an endowed full professor faculty position in 2005 at Department of Engineering Management and System Engineering.
- Chair of the Technology Committee for the Batten College of Engineering and Technology and Engineering Management Representative on that committee for 2004-2005.
- Engineering Management Representative on the Technology Committee for Batten College of Engineering and Technology for 2003-2004.
- Engineering Management Representative on the Library Committee for Batten College of Engineering and Technology for 2002 – 2003.
- Maintaining the Department of Engineering Management and Systems Engineering Web Site August 2002 – 2010.
- Advised the organizing committee of the *Womengineers Day* at ODU in 2004 on Planning and scheduling of students.

## PROFESSIONAL SERVICE:

- **Editor-in-Chief**, *International Journal of Planning and Scheduling*: <http://www.inderscience.com/IJPS>
- **Co-Chair** of the 6<sup>th</sup> *International Workshop on Enterprise and Organizational Modeling and Simulation* (EOMAS 2010), <http://www.eomas.org/>, June 7-8, 2010, Hammamet, Tunisia, In conjunction with The 22nd International Conference on Advanced Information Systems Engineering (CAiSE'10)
- **Co-Editor** of the [Proceeding of the 6<sup>th</sup> International Workshop on Enterprise and Organizational Modeling and Simulation \(EOMAS 2010\)](#), Hammamet, Tunisia
- **Technical Conference Chair** for the 26<sup>th</sup> National Conference for the American Society for Engineering Management (ASEM), which was held in Virginia Beach, VA, in October 26 – 29, 2005.
- **Senior Advisory Board Member** for SIGMAS (Special Interest Group on Modeling and Simulation), <http://www.ais-sigmas.org/officers.php>

- Member of the International Program Organizing Committee, *Enterprise and Organizational Modeling and Simulation*, Netherlands, 2009; Tunisia, 2010; England, 2011; Poland 2012 (<http://www.EOMAS.org/>)
- Member of the Program Committee of Simulation Multiconference (Modeling and Simulation in Engineering-MSEng'09, March, 2009, San Diego, CA
- Gave a speech on Process Modeling and Simulation to the INCOSE Central VA chapter at University of Virginia, Charlottesville, VA, Sept 2008.
- Technical Reviewer for the following conferences:
  - Industrial Engineering Research Conference, 2009
  - International Workshop on Enterprise & Organizational Modeling and Simulation*, Amsterdam, the Netherlands, June, 2009
- Technical reviewer for the following journals:
  - Journal of Combinatorial Optimization*
  - SIMULATION Journal*
  - Computers & Operations Research*
  - Engineering Optimization*
  - European Journal of Operational Research*
  - International Journal of Production Economics*
  - International Transactions in Operations Research*
  - Simulation & Gaming Journal*
  - Transportation Research Part E: Logistics and Transportation Review*
  - Production Planning and Control*
  - Production and Operations Management*
  - Science Asia – Journal of the Science Society of Thailand*
  - Engineering Journal of the University of Qatar*
  - DIRASAT journal of the University of Jordan*
- Started in April 2005 a new web site for the research area of *Scheduling and Sequencing*. The maintenance and improvement on this research web site will be a continuous effort (<http://SchedulingResearch.com>)

## COMMUNITY SERVICE:

- Reestablished in 2011 the Richmond/Tidewater INFORMS local chapter and organized several meetings with guest speakers and sponsors
- Participated in 2006 as a panel member on Modeling and Simulation Scenarios for Maritime and Transportation Security for **the Hampton Roads area**. This included demonstrating a simulation model for the Norfolk International Terminal (NIT) and answering questions from the local industry and government. Other

members on the panel included Bouchard, J., Keever, J., Crouch, K., and Verdery, S.

- Took 7th through 12th grade students from **Eastern Shores Middle and High School** in a tour in the *National Centers for Systems of Systems* (NCSOSE) at the Engineering Management and Systems Engineering Department. The tour included showing the students the capabilities at NCSOSE and explaining to them what Engineering Management and Systems Engineering is about.
- I developed a web site for a charity that supports women in Jordan called Alamani Society Foundation that was founded in 2006. I maintained its web site from 2006 to 2011 and I have been paying for the web address as a contribution to this charity. The web site can be found at: [www.alamani.org](http://www.alamani.org)