Design it.
Test it.
Play with it.

Who says you can’t have fun in class?

MSIM 495/595

Topics: Design and Modeling of Autonomous Robotics Systems

Spring 2014 Offering

Dr. Yiannis Papelis - Instructor

Course Description:
The course focuses on the use of modeling and simulation (M&S) for designing autonomous robotics systems. A simulation environment will be used extensively to develop and validate models of chassis, motors and sensors. The class consists of a lecture portion covering fundamentals of autonomous robotics and a lab portion allowing hands-on application of the lecture material. The lab portion includes use of a physical robot as well as a simulation environment.

Some of the topics to be covered in the course include:
• Motor fundamentals, control, modeling and model validation
• Fundamentals of sensors; building sensor models based on specifications and measurements
• General robot locomotion with emphasis on wheeled robot trajectory control strategies
• Dead reckoning, mapping, and localization
• Planning and AI, to include trajectory planning, maze traversals, and line following
• Multi-robot interactions and communication, seek/avoid behaviors, and collaborative behaviors

Course Pre-requisites:
• CS 150
• Junior or Senior in an Engineering or Science major or permission of the instructor

For more information, contact Dr. Yiannis Papelis at ypapelis@odu.edu or stop by the Department of Modeling, Simulation and Visualization Engineering in ECSB 1300.