EE 666  Topics in Robotics
3 credits

Instructor:  Prof. Anthony A. Maciejewski  
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Texts:  Recent papers from the IEEE Transactions on Robotics and Automation, IEEE Conference on Robotics and Automation, or comparable quality sources.

Prerequisites:  EE555 or consent of instructor

Description:  Students in this course will be required to read and critique recently published research papers in robotics/cyber-physical systems. The goal is to develop their critical thinking skills and provide practice in assessing new work with respect to the current state of the art. Students will learn how to distinguish between evolutionary advances and seminal work. They will also be required to present to the class a conference-type presentation on the research from papers of their choice.

Outcomes:  Students successfully completing this course will be able to summarize the current state-of-the-art in robotics research, to critically analyze manuscripts submitted for peer review, and to design effective technical presentations.

Topics:  Will vary each semester based on the interest of the students. Robotics is broadly defined to include most research areas within ECE, including e.g., computing, controls, communications, signal processing, and sensing. Examples topics include:
- Locomotion
- Motion planning
- Manipulation
- Sensing (visual/haptic/proximity)
- Anthropomorphic robots
- Robots in unstructured environments (space, underwater, service)
- Human/robot interaction
- Internet robotics
- Virtual reality
- Medical robotics

Grading:  20% - Annotated bibliography of seminal work in the student’s research field (basis of the related work section of a thesis)  
30% - Two simulated research paper reviews  
50% - Three research paper presentations and critiques (same format as an ECE qualifier exam)