

PATRICK S. WALTERS

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SUMMER GOALS

Apply my strong theoretical background in nonlinear, adaptive and optimal control, and autonomous systems to challenging problems relevant to the United States Navy. Further develop novel control theory for application to naval systems, such as autonomous underwater vehicles (AUVs). Explore new areas to apply developed skillset.

EXPERIENCES

Current, from Aug 2008

SubjuGator Project, Gainesville, FL Team Leader (2012-Present)

Lead an interdisciplinary team of engineers developing an autonomous underwater vehicle. Developed vehicle control laws and state estimation algorithms. Designed pressure vessels and electronics' enclosures.

May-Aug 2012 and May-Aug 2011

Naval Surface Warfare Center, Panama City, FL SMART Scholar Intern

Developed genetic algorithm-based AUV adaptive track planning for improved search effectiveness. Familiarization with REMUS 100 and use within naval operations. Exposure to government contract development and product specifications.

May-Aug 2008

General Dynamics, Panama City, FL Engineering Intern

Worked with engineers of multiple disciplines, designed mechanical enclosure for optics and electronics in a diving heads-up display system. Gained familiarity with specification driven design and defense contracting.

Jun-Aug 2007 and Jun-Aug 2006

Naval Surface Warfare Center, Panama City, FL Engineering Intern

Familiarity with test planning, trade analysis, and technical reporting with experimental dive equipment and night vision systems.

EDUCATION

May 2015

Doctor of Philosophy in Mechanical Engineering
Dissertation Topic: Approximate Optimal Control
University of Florida, Gainesville, FL
GPA: 3.93/4.00

August 2012

Master of Science in Mechanical Engineering
University of Florida, Gainesville, FL
GPA: 3.93/4.00

May 2011

Bachelors of Science in Mechanical Engineering
Minor in Electrical Engineering
University of Florida, Gainesville, FL
GPA: 3.65/4.00

PUBLICATIONS

- **P. Walters**, R. Kamalapurkar, L. Andrews, W. E. Dixon "Online approximate optimal path-following for a mobile robot," *IEEE Conference on Decision and Control*, 2014, under review.
- R. Kamalapurkar, **P. Walters**, W. E. Dixon "Concurrent learning-based approximate optimal regulation," *IEEE Conference on Decision and Control*, 2013.
- R. Kamalapurkar, H. T. Dinh, **P. Walters**, W. E. Dixon "Approximate optimal cooperative decentralized control for consensus in a topological network of agents with uncertain nonlinear dynamics," *American Control Conference*, 2013.
- N. Fischer, D. Hughes, **P. Walters**, E. M. Schwartz, W. E. Dixon "Nonlinear RISE-based control of an autonomous underwater vehicle," *IEEE Transactions on Robotics*, 2013, to appear.

TOOLSET

Areas of study: Nonlinear control, adaptive control, optimal control, robot manipulator kinematics, analytical dynamics, stochastic systems

Software: MATLAB and Simulink, SolidWorks, Solid Edge, Pro/ENGINEER, Altium Designer