

ARMANDO SINISTERRA

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Postdoctoral Associate Researcher, interested in the areas of Control of Marine Unmanned Surface Vehicles, Computer Vision, perception systems, with expertise in C/C++, Matlab, and Python programming languages, as well as ROS and Ardupilot frameworks.

PROFESSIONAL EXPERIENCE

FLORIDA ATLANTIC UNIVERSITY, Boca Raton FL

Postdoctorate Associate Researcher, February 2016 - Present

- Design and implementation of an Unmanned Surface Vehicle platform, based on the Ardupilot framework and ROS (Robot Operating System) middleware
- Development of a multi-sensor based perception system for Unmanned Surface Vehicles
- Development and implementation of reactive obstacle avoidance and path-planning algorithms in support of the Unmanned Surface Vehicle's autonomy
- Development of autonomous missions for Unmanned Aerial Vehicles, based on the Ardupilot framework
- Design and implementation of low-level controllers for Unmanned Surface Vehicles

FLORIDA ATLANTIC UNIVERSITY, Boca Raton FL

Research and Teaching assistant, May 2011 - May 2015

- Presented topics in Advanced Math for Ocean Engineering (Levels 1 and 2), under the guidance of Dr. Manhar Dhanak for graduate students
- Discussed and assisted the students on Assignments and Projects in order to reinforce learning concepts presented in the courses
- Graded homework, tests and final Projects required to pass the courses
- Prepared lesson materials
- Ph.D. related research and publications, in the area of stereo vision-based navigation and Unmanned Surface Vehicles
- Ph.D. Dissertation

FLORIDA ATLANTIC UNIVERSITY, Boca Raton FL

Research Assistant, May 2009 - May 2011

- M.Sc related research, in the area of simulation and control of Linear Induction Motors

EDUCATION

FLORIDA ATLANTIC UNIVERSITY, Boca Raton, FL

Doctor of Philosophy (Ph.D.) in Ocean Engineering, August 2015

FLORIDA ATLANTIC UNIVERSITY, Boca Raton, FL

Master in Science (M.Sc) in Ocean Engineering, May 2011

UNIVERSIDAD DEL VALLE, Cali, Colombia

Bachelor in Mechanical Engineering, December 2005

Publications:

A low-level sliding mode based path-following controller for fully-actuated USV, incorporating an environmental disturbances observer, is underway.

A.J. Sinisterra, N. Kouvaras, and M.R. Dhanak, "A USV Platform for Multi-Domain Autonomy", Oceans 2017. September 2017. Anchorage, Alaska.

A. J. Sinisterra, M. R. Dhanak and K. von Ellenrieder , "Stereovision-Based Target Tracking System for USV Operations", Ocean Engineering, vol. 133, pp. 197-214, 2017.

Shah, B. C., Svec, P., Bertaska, I. R., Klinger, W., Sinisterra, A. J., von Ellenrieder, K., ... & Gupta, S. K. (2014, September). Trajectory planning with adaptive control primitives for autonomous surface vehicles operating in congested civilian traffic. In Intelligent Robots and Systems (IROS 2014), 2014 IEEE/RSJ International Conference on (pp. 2312-2318). IEEE.

Sinisterra, A. J., Dhanak, M. R., & von Ellenrieder, K. (2014, September). "Stereo vision-based target tracking system for an USV", In Oceans-St. John's, MTS-IEEE Oceans Conference Proceedings, 2014 (pp. 1-7). IEEE.

Svec, P., Shah, B. C., Bertaska, I. R., Alvarez, J., Sinisterra, A. J., von Ellenrieder, K., ... & Gupta, S. K. (2013, November). Dynamics-aware target following for an autonomous surface vehicle operating under COLREGs in civilian traffic. In Intelligent Robots and Systems (IROS), 2013 IEEE/RSJ International Conference on (pp. 3871-3878). IEEE.

Bertaska, I. R., Alvarez, J., Sinisterra, A., von Ellenrieder, K., Dhanak, M., Shah, B., ... & Gupta, S. K. (2013, October). Experimental evaluation of approach behavior for autonomous surface vehicles. In ASME 2013 Dynamic Systems and Control Conference (pp. V002T32A003-V002T32A003). American Society of Mechanical Engineers.