Avviso di Seminario

Marine Field Robotics: Problems and Techniques for Propulsion, Control, Mapping, and Intervention in a Dynamic Environment

Prof. Stephen Licht
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Abstract

The discipline of field robotics as a whole is undergoing rapid and continuous change. Computing, sensing, communication, and rapid prototyping hardware is becoming smaller/cheaper/faster, and autonomy, navigation, mapping and control algorithms are all improving to take advantage of these changes. These changes have spurred rapid and well publicized advances in autonomous capabilities for aerial and ground robotics.

This seminar will address how the extraordinary physical challenges of the dynamic marine environment have shaped the impact of these technologies on marine robotics, through the example of ongoing research projects in propulsion, control, mapping, and intervention of robots in and around the ocean.

About the speaker

Dr. Licht is the director of the Robotics Laboratory for Complex Underwater Environments (R-CUE) at the University of Rhode Island. Our goal is to develop maritime robots with the ability to operate in dynamic and unpredictable environments. To this end, we investigate biologically inspired propulsion as a means of providing high authority/high bandwidth thrust; distributed pressure sensing for detection of flow structures and obstacles; model based optimal control and trajectory generation strategies for maneuvering in dynamic conditions; and compliant underwater manipulation and intervention technologies.

Dr. Licht received his Ph.D. in Oceanographic and Mechanical Engineering in 2008 from the MIT/WHOI Joint program, where he created 'Finnegan the RoboTurtle'. Prior to joining the URI faculty, he was a Senior Research Scientist with the Maritime Research group at iRobot, and Senior Robotics Engineer with Vecna Robotics. During his time in the robotics industry, Dr. Licht designed, simulated, and field tested model-based control systems for underwater vehicles and ground robots driven by bladders, fins, flippers, propellers, legs, wheels, and tracks.

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