

CS Seminar

Feb 14/14 2:30 pm



Jodrey School of Computer Science

SEMINAR PRESENTATION

Friday, February 14, 2014

2:30 PM

Carnegie Hall 113

ARCTIC APPLICATIONS OF ROBOTS AND NATURE'S FURY

DR. MAE SETO

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Abstract

The presentation is on the potential use of robots in the Arctic. Some of these potential applications are in response to 'Nature's Fury'. They include unmanned underwater, aerial, and surface vehicles (robots) applied towards rescue efforts in the aftermath of an earthquake in a remote northern community. The choice of robot to apply to a particular task depends on its capabilities and on-board autonomy. The on-going research and the Arctic trials that validated such capabilities will be presented. An application that will also be highlighted is the collection of under-ice bathymetric data in fulfillment of Canada's UNCLOS claim. This project drove the development of, currently, the most advanced unmanned underwater vehicles in the world – the Arctic Explorer UUVs. Then, the fundamentals and background of current research that applies machine learning and SLAM (simultaneous localization and mapping) to autonomous robots for several applications will be presented.

About the Presenter

Dr. Mae Seto is a Senior Defence Scientist at Defence R&D Canada (DRDC) and Adjunct Professor of Mechanical Engineering and Computer Science at Dalhousie University. Her research and technical contributions are in the area of autonomy and control for marine (above, on, and under water) robots, underwater sensors, ship and submarine acoustics, dynamics of towed underwater systems, and multi-agent systems. Dr. Seto has written numerous papers and articles in these areas. She teaches the graduate autonomous robotics course in Mechanical Engineering and Computer Science. Dr. Seto has been Chief / Principal Scientist on several DRDC trials including one to the Canadian Arctic. She is Chair of the IEEE Canadian Atlantic Section Robotics and Automation Society and also Associate Editor for the IEEE Journal of Oceanic Engineering. Dr. Seto spent summer 2013 at MIT as she is collaborating with the MIT Marine Robotics Group in the area of underwater SLAM.

Dr. Seto was an NSERC Industrial Post-Doctoral Fellow working in autonomous underwater vehicles. Dr. Seto earned her Ph.D. in Mechanical Engineering and B.A.Sc. in Engineering Physics (electrical engineering option) - both from the University of British Columbia.

Everyone is welcome to attend
