CMPT 882 - G100 Special Topics in Artificial Intelligence

Instructor(s): Richard Vaughan  
SFU Burnaby

Calendar Objective/Description:
None

Instructor's Objectives:

Special Topics Title: Distributed Robot & Sensor Systems

Goals:

Students will understand:
(i) the applications and challenges of building systems of multiple robots and/or sensors;
(ii) the major approaches from the literature;
(iii) motivating examples from nature.

Students will implement their own multi-robot system in a research-paper-style project.

Topics:

- multi-robot systems
- sensor networks
- software engineering for distributed systems
- control and coordination models for multi-agent systems, including
  - explicit consensus models
  - swarm approaches
- applications & challenges

Outline:

- seminar class based on research papers
- students present and critique papers
- two short programming homework: compare explicit consensus with a swarm robot approach
- project: implement and experiment with a multi-robot system or sensor network in simulation or on real hardware

Prerequisites:
None

Grading:
Based on student presentations, short homework, and a major project.

Academic Honesty Statement:
Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies [http://www.sfu.ca/policies/gazette/student.html].