CMPT 418/862: Intelligent Systems

Instructor:

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Office hours: Thursday 3:30-4:30 (appointments strongly recommended)

Purpose of the class:

The class will introduce the area of multi-agent systems as a new way of designing and conceptualizing distributed software. It takes an "inside-out" approach, starting with the architecture of intelligent agents, basic mechanisms for autonomous behaviour and extends into agent communication, negotiation, collaborative problem-solving, reaching to multi-agent societies. On the way, application areas, as well as methodologies and agent frameworks will be discussed.

Class website:

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http://www.cs.usask.ca/classes/418/t1
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Text and resources:

- Mike Wooldridge (2002) MultiAgent Systems, John Wiley. (required)

Other readings (with their library code):
- Jeffrey M. Bradshaw (1997) Software agents, QA76.76 .I.58S64 1997
- Jacques Ferber, (1999) Multi-agent systems : an introduction to distributed artificial intelligence, TJ217.5 .F5313 1999
- Joseph P Bigus, (1998) Constructing intelligent agents with Java : a programmer's guide to smarter applications, QA76.76 .I.58B558 1998
- Web-based resources

Tentative schedule:

Week	Topic	Readings	Coursework
Sept 8	Intro to the class (short lecture due to the grad symposium)		
Sept 13-15	Overview of the Area of Software Agents	Ch. 1, Ch. 2.1-2.4	
Sept 20-22	Architectures for Intelligent Agents	Ch. 2.5-2.8	

		Ch. 3	
Sept 27-29	Autonomous Behaviour: Planning	Ch.4	
Oct 4-6	Reactive Behaviour; Robots	Ch.5	
Oct 11-13	Human-Computer Interface Agents, Personal Agents	TBA	** Start thinking about possible projects / teams
Oct 18-20	Agent Communication Languages and Ontologies	Ch. 8	Oct 22: Assignment 1 due
Oct 25-27	Agent Development Frameworks and Methodologies	Ch. 10, TBA	
Nov 1-3	Cooperative Behaviour: Distributed Problem Solving	Ch. 9 (without 9.6.4), 9.7	
Nov 8-10	Self-Interested Behaviour: Elements of Game Theory	Ch. 6	
Nov 15-17	Agent Negotiation	Ch. 7	
Nov 29-Dec 1	Agent Societies	Ch.9.6.4, Ch.11.7	Dec 4: Assignment 2 due

Evaluation

CMPT 418	CMPT 862
Assignment 1 (programming SA): 20%	Assignment 1 (programming SA): 20%
Assignment 2 (programming MAS): 30%	Assignment 2 (programming MAS):30%
Final Examination: 50 %	Project and Paper: 50%

Notes and regulations:

All students must be properly registered in order to attend lectures and receive credit for this course. Students are expected to attend lectures, to read the corresponding reading sources *before* each lecture and participate in class discussions.

For 418 students: failure to write the final exam will result in failure of the course. At least 30% on the coursework is required to be eligible to write a final exam.