CIS*6550-02 Topics in Computer Science I
Software Agents

Winter 2004

Instructor: Qusay H. Mahmoud, qmahmoud@cis.uoguelph.ca

Co-Examiner: Mieso Denko, denko@cis.uoguelph.ca

Class Time and Place: TBA

Office Hours: TBA (held @ Guelph-Humber)

1. Overview

A software agent is an entity that functions continuously and autonomously in a particular environment, often inhibited by other agents and processes. This course will introduce graduate students to the field of software agents and its applications in wired and wireless computing environments. The pre-requisite for this course is the successful completion of any CIS graduate course.

2. Objectives

The objective of this course is to introduce graduate research students to the field of software agents and its applications in wired and wireless computing environments.

3. Material

The following resources will be used for this course:

- **Books**:
  - Software Agents edited by J. M. Bradshaw. AAAI/MIT Press, 1997.
  - Introduction to MultiAgent Systems by Michael Wooldridge. John Wiley & Sons Ltd, 2002.
- **Journals**: Several IEEE/ACM journals and magazines feature papers on multi-agent systems. Students will have online access to these journals through the University of Guelph's subscription.
- **Conference Proceedings**: papers from conferences related to multi-agent systems
- **Online Resources**: Several agent-oriented research papers are available online.
- **Agent Systems**: Students will be asked to investigate several Java-based agent systems that are freely available (such as JADE, Aglets, and Concordia).

The topics to be covered in this course:

- The views of the software agents field
- Agents vs. Objects
- Agent Classifications (Intelligent, Reasoning, Reactive, Hybrid, Mobile)
- Mobile agents

- MultiAgent Interactions
- Inter-Agent Communication Mechanisms
- Security mechanisms
- Integrating Agents in Wired and Wireless Environments
- Agent-Oriented Software Engineering
- Performance evaluation of agent systems

4. Method of Presentation

Students will be given specific research topics to work on. The instructor and students will meet on a weekly basis to discuss the progress of the assigned work

5. Method of Evaluation

The following grading scheme will be used:

1 Two Major Written Assignments (each is 5000 words minimum): 20% each

2) Project:
   a) Programming (functional system): %30
   b) Report (5000 words minimum): 20%
   c) Seminar: 10%

6. Report to Co-Examiner
Each student enrolled in this course is required to brief (it can be done via email) Prof. Denko on the activities and progress in the course (monthly basis).