CSC592CM: Cognitive Modeling

Syllabus – Fall 2006

Time: Section 1 R6-8:45pm, Location: Kelly Rm 102
Webpage: http://homepage.cs.uri.edu/faculty/hamel/courses/fall2006/csc592
Prerequisites: basic familiarity with AI

Instructor:
Prof. Lutz Hamel
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office: Tyler Hall, Rm 251

Course Description

Cognitive science represents a confluence of disciplines from computing, machine learning and AI, to Psychology and Sociology. Computational modeling plays a central role in cognitive science. This course is an introduction to computational models of human cognition. We will cover the major approaches and architectures, both neural network, symbolic, and heuristic; major theoretical issues; and specific computational models of a variety of cognitive processes, ranging from low-level (e.g., attention and memory) to higher-level (e.g., language and reasoning). The emphasis is on implemented computational models and on modeling empirical data.

The aim of this course is for you to develop a basic understanding of the issues surrounding cognitive modeling and acquire the skills and vocabulary to access current research available.

Texts

Cognitive Modeling, Thad A. Polk and Colleen M. Seifert (Eds.), The MIT Press, 2002, ISBN 0262661160.
Simple Heuristics That Make Us Smart, Gerd Gigerenzer, Peter M. Todd, ABC Research Group, Oxford University Press, 2000, ISBN 0195143817.

Software

We will be using Lisp and/or Scheme for the programming exercises. Highly recommended is DrScheme, since it is supported on many different platforms. More details on the website.

Grading

The format of this course is slightly different from what you are used to, we will take turns in presenting material. Both required texts are compendia of different material, we will assign selected articles to course participants at the beginning of the semester in

order to prepare this material for presentation. In addition, participants that are not presenting will have to prepare at least one question in writing for each lecture and hand it in at the end of the lecture.

Grade Breakdown:
Prepared questions: 20%
Presentations: 40%
Projects: 40%

Policies

- Check the website (often)! I will try to keep the website as up-to-date as possible.
- Class **attendance, promptness, participation,** and **adequate preparation** for each class are expected. If you are absent, it is your responsibility to find out what you missed (e.g. handouts, announcements, assignments, new material, etc.)
- **Late assignments** will be accepted with a penalty of 5% per day late. No assignments will be accepted if they are more than 7 days late.
- **Make-up quizzes** and **exams** will **not** be given without a valid excuse, such as illness. If you are unable to attend a scheduled examination due to valid reasons, please inform myself, or the department office in Tyler Hall, prior to the exam time. Under such circumstances, you are not to discuss the exam with any other class member until after a make-up exam has been completed.
- All work is to be the result of your own individual efforts unless explicitly stated otherwise. **Plagiarism, unauthorized cooperation or any form of cheating** will be brought to the attention of the Dean for disciplinary action. See the appropriate sections (8.27) of the University Manual.
- **Software piracy** will be dealt with exactly like stealing of university or departmental property. Any abuse of computer or software equipment will subject to disciplinary action.

Tentative Schedule

Wk	Topic
1	Introduction
2	Semantic Networks
3	Rules
4	Rules
5	Simple Heuristics
6	Simple Heuristics
7	Concepts
8	Analogy
9	Neural Networks
10	Neural Networks
11	Emotions
12	Language