ARTIFICIAL INTELLIGENCE APPLICATION DEVELOPMENT

INTRODUCTION
Today’s Outline

Course Overview
Administration
Objectives

We will examine current research in Artificial Intelligence (AI), with an emphasis on algorithms and representations that can be put to use in solving practical problems now or in the near future.

Multiple areas of AI will be covered, with a focus on topics not covered during CS 1571.

Course objectives include

- Ability to build simple versions of a few AI applications
- Familiarity with full-scale versions of the same applications
- Application building using paradigms of AI Programming
- Mastery of some AI toolkits for AI applications and rapid prototyping
Major Topics of this Course

Advanced AI Topics

- empirical methods
- agents / embedded AI
- natural language processing
- machine learning
- others tailored to class interests and time

Methodologies, Tools and Languages

- knowledge-based and statistical
- regular expressions, grammars, probability, automata, and more
- online toolkits
- programming languages of your choice
Artificial Intelligence

The field of *Artificial Intelligence (AI)* is primarily concerned with understanding and building intelligent entities.

AI is one of the newest (since 1956) and oldest (since 4000 BC) disciplines. Studying AI involves studying formal representations, and algorithms for their manipulation.
Sample Pitt Applications

Tutor students in areas such as physics
Detect and adapt to user frustration
Access the web over the telephone
Recognize opinions in the world press
Detect disease outbreaks
Extract forms from medical transcriptions
Demos

Dialogue Systems

- ELIZA (www-ai.ijs.si/eliza/eliza.html)
- JUPITER (1-888-573-TALK)

Question Answering

- AnswerBus (www.answerbus.com/news)
- Opinion Highlighter (Pitt)

Summarization

- Newsblaster (www.cs.columbia.edu/nlp/newsblaster)
- NewsInEssence (www.newsinessence.com/nie.cgi)

Machine Translation
• Babelfish (babelfish.altavista.com)

Games

• Tic Tac Toe (http://www.geocities.com/chen_levkovich/tictactoegame.html)

Collaborative Filtering / Recommender Systems (Amazon)

• LIBRA (http://titan.cs.utexas.edu:8090/libra/index.jsp) (cs1573)
Administration

Professor

Textbook

Web page

Requirements

Who should be here
Dr. Diane Litman

Affiliations

• Associate Professor, Computer Science Department
• Research Scientist, LRDC

Contact Information

• 5105 Sennott Square, (412) 624-8838
• 741 LRDC, (412) 624-1261
• litman@cs.pitt.edu

Office Hours TBA
Litman, cont.

Background

- 2001-present: University of Pittsburgh
- Previously: AT&T Labs - Research (formerly AT&T Bell Laboratories);
  Columbia University

Homepage

- http://www.cs.pitt.edu/~litman
Litman, cont.

Research

- Speech and Natural Language Processing
- Other Artificial Intelligence
  - machine learning applications
  - user modeling and personalization
  - knowledge representation
  - plan recognition
Teaching Assistant

Beatriz Maeireizo

- Doctoral Student, Computer Science Department

Contact Information

- beamt@cs.pitt.edu

Office Hours

- TBA
Class

Who are you?
Texts


Selections from other textbooks
URL

- www.cs.pitt.edu/~litman/courses/cs1573/1573.html

Syllabus

- topics
- readings
- assignments
- lecture notes
- announcements
Requirements

Readings (before class!)

Homeworks (problem sets, writing and using programs)

Midterm and Final Exams

Project (programming, paper, and presentation)

Class Participation
Prerequisites

CS1571, and the ability to write and use programs
For Next Time

(Re)Read Chapter 1 from Artificial Intelligence: A Modern Approach

Get a CSSD account

- you will need to run your programs on unixs.cis.pit.edu
- you will need to access /afs/cs.pitt.edu/projects/nltk/

Send me email for a class mailing list

Assignment

- find an interesting AI application or demo, and be prepared to report back on your findings
Survey

Name:

Email:

Year:

Major:

When took CS1571:

Other Relevant Courses:

Programming Languages (especially Python, Java, Lisp, Perl):

AI Paradigms (state machines, regular expressions, rule systems, grammars, logic, probability, automata, machine learning, etc.):

Operating Systems:

Special Interests: