Introduction to Artificial Intelligence

COS302
Michael L. Littman
Fall 2001

MW 3-4:20 104
Contact Information

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Course web page:
http://www.cs.princeton.edu/courses/archive/fall01/cs302/
real soon now...
Administration


Teaching Assistants

- Gang Tan (gtan@cs) 215
- Kedar Swadi (kswadi@cs) 416
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<tr>
<th>Grade</th>
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<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Programming</td>
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<tr>
<td>Midterm</td>
<td>20%</td>
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<td>Final Project</td>
<td>20%</td>
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Programming primarily in “C”. 
About You

Sophomores: 5
Juniors: 25
Seniors: 29
• Total: 59
About Me

Where was I?

- Research: Bellcore 88-92
- PhD: (CMU) Brown Univ. 92-96
- Prof.: Duke University 96-99
- Research: AT&T Labs 00-

What do I do (in AI)?

- Planning under uncertainty
- Algorithm design
- Statistical natural lang. processing
What is AI?

Princeton student connections
Minsky, Edmonds: neural computer 1951
McCarthy helped create the Dartmouth workshop in 1956 that defined the field.
What is it now?
AI Survey Game: Rules

“face off” to control board
opportunity to steal
three “strikes”
opportunity to steal
6 rounds
Family Feud

It's time for AI Family Feud! Let's meet the A-L family! - Ready for action!....

And the K-Z family! - On your marks!..Let's start

AI FAMILY FEUD!
Round 1

Name a reason that humankind studies AI.

Survey says!

X X X X

next
Round 2

Name something that defines AI as distinct from other fields.

Survey says!

X X X X

next
Round 3

To the nearest 5 years, how long will it take humankind to create human-level AI?

Survey says!

X X X X

next
Round 4

Name something that an AI system will do that will signal the arrival of human-level AI.

Survey says!

X X X X

next
Round 5

Name the smartest AI from science fiction.

Survey says!

X X X

next
Round 6

Name the most impressive accomplishment in AI in the last ten years.

Survey says!

next
Syllabus Sketch

I. Search
   Example: Rush Hour Puzzle
   http://kgs.kiseido.com/~wms/rushHour/

II. Language Processing
   Analogy Problems
   http://www.kagi.com/edicom/edu/sat_51.htm
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<td>Intro</td>
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<td>9/19</td>
<td>Search</td>
<td>Ch. 3 [3.3, 3.5]</td>
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<td>9/24</td>
<td>Heuristic Search</td>
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<td>9/26</td>
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<td>Satisfiability</td>
<td>Ch. 6 [6.4, ex. 6.15]</td>
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<tr>
<td>10/3</td>
<td>Sat. Encodings</td>
<td>Ch. 4 [4.4], B. 3.1, B, [20.8]</td>
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<tr>
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<td>Local Search</td>
<td>Ch. 5 [5.2, 5.3, 5.4]</td>
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<td>Game trees</td>
<td>[5.5]</td>
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<td>10/22</td>
<td>Games of chance</td>
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<td>Markov Models</td>
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II. Language Processing

11/ 5 Language and learning            Ch. 22
11/ 7 Probability and IR               Ch. 14 [14.2], Ch. 23 [23.1]
11/12 Sequence models                  [24.7]
11/14 Statistical Parsing              [23.2]
11/19 Hidden Markov Models             
11/21 Catch up day                     
11/26 Supervised Learning             Ch. 18 [18.3]
11/28 Neural Networks                  Ch. 19 [19.3, 19.4]
12/ 3 Latent Semantic Semantic Indexing
12/ 5 Belief Networks                  Ch. 15 [15.1, 15.2]
12/10 Belief Network Inference         Ch. 19 [19.6]
12/12 Wrap up                         