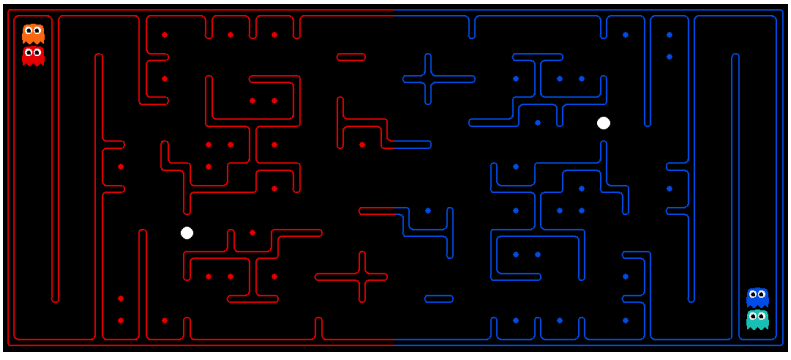
CS 188: Artificial Intelligence
Fall 2011

Lecture 25: Conclusion
12/1/2011

Dan Klein – UC Berkeley

Pacman Contest



- Challenges:
  - Long term strategy
  - Multiple agents
  - Adversarial utilities
  - Uncertainty about other agents' positions, plans, etc.

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CONTEST SLIDES HIDDEN

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…and Congratulations to All!

- Amazing work by everyone
- You should all be proud of what you've accomplished!

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Example: Starcraft

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What is Starcraft?

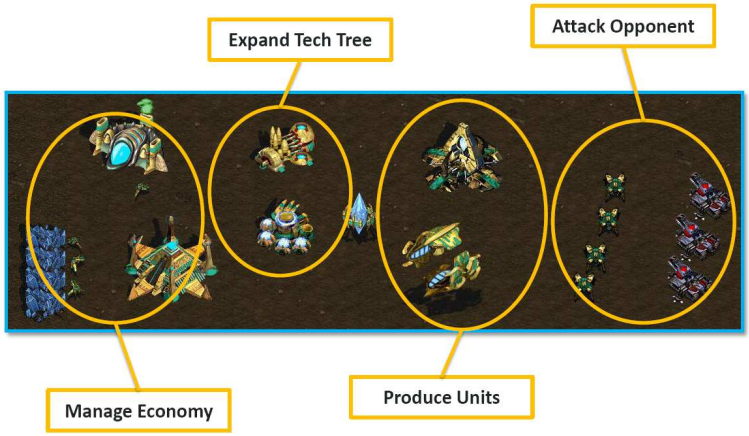

Image from Ben Weber 11

Why is Starcraft Hard?

- Starcraft is:
  - Adversarial
  - Long Horizon
  - Partially Observable
  - Realtime
  - Concurrent
  - …
- No single algorithm (e.g. minimax) will solve it off-the-shelf

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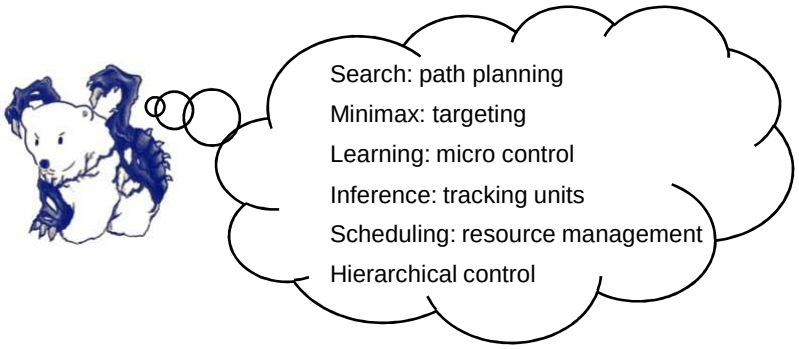
The Berkeley Overmind



http://overmind.eecs.berkeley.edu

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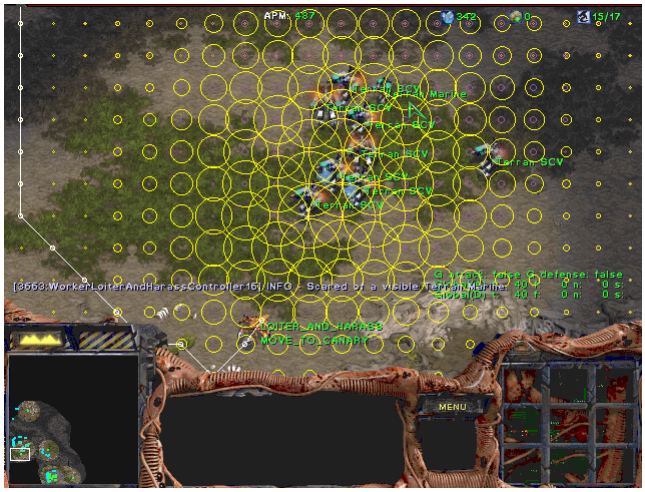
Search for Pathing



[Pathing] 14

Minimax for Targeting

[Targeting] 15

RL for Micro Control

[RL, Potential Fields] 16

Inference / VPI / Scouting

[Scouting, Cloaking] 17

Starcraft AIs: AIIDE 2010

```
onFrame() {
    units = Broodwar->getAllUnits();
    unit->attackUnit(enemyUnit);
}
```

```
onFrame() {
    units = Broodwar->getAllUnits();
    unit->attackUnit(enemyUnit);
}
```

- 28 Teams: international entrants, universities, research labs…

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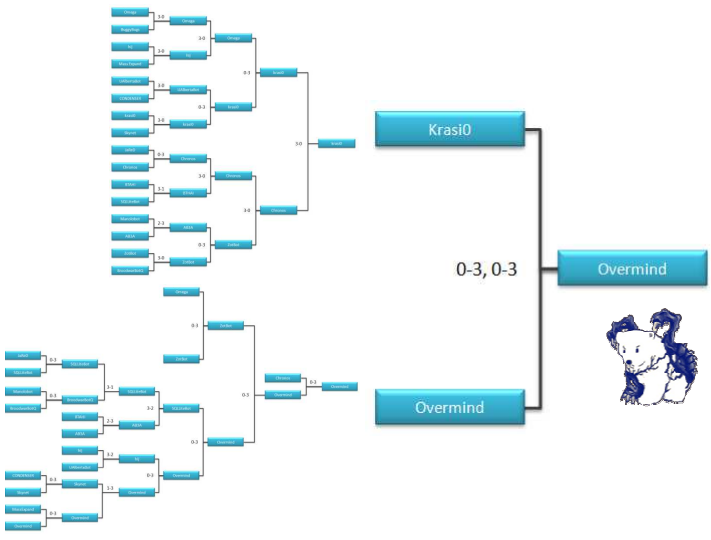
AIIDE 2010 Competition



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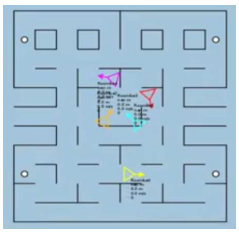
Pacman: Beyond Simulation?

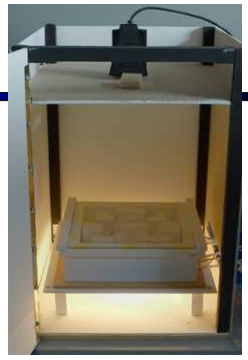


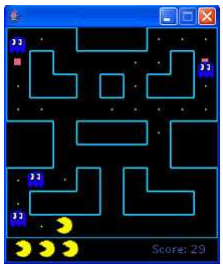
[DEMO]

Students at Colorado University: http://pacman.elstonj.com

Bugman?

- AI = Animal Intelligence?
  - Wim van Eck at Leiden University
  - Pacman controlled by a human
  - Ghosts controlled by crickets
  - Vibrations drive crickets toward or away from Pacman's location





[DEMO]

http://pong.hku.nl/~wim/bugman.htm

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Where to go next?

- Congratulations, you've seen the basics of modern AI
  - … and done some amazing work putting it to use!
- How to continue:
  - Machine learning: cs281a / cs281b (also a 194)
  - Cognitive modeling: cog sci 131
  - Vision: cs280
  - Robotics: cs287
  - NLP: cs288
  - Decision making: cs289
  - … and more; ask if you're interested
- Next term:
  - cs280 (vision)
  - cs281b (classificiation)

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That's It!

- Help us out with some course evaluations
- Have a good break, and always maximize your expected utilities!

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