CS 188: Artificial Intelligence
Conclusion

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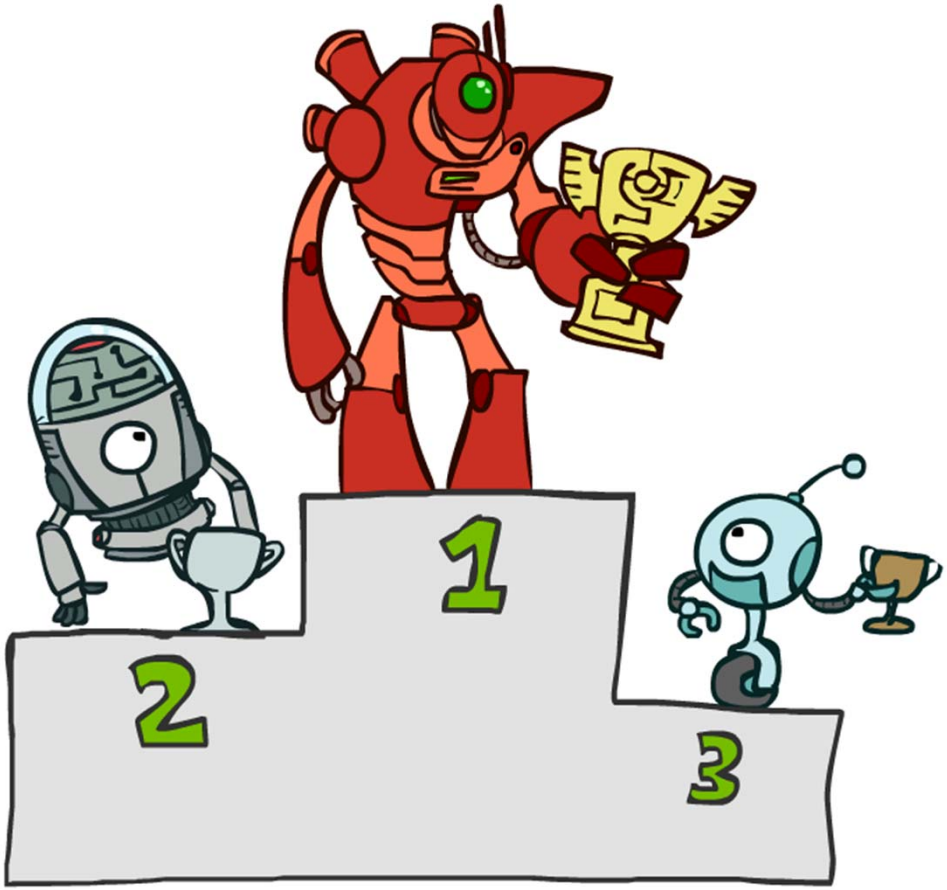
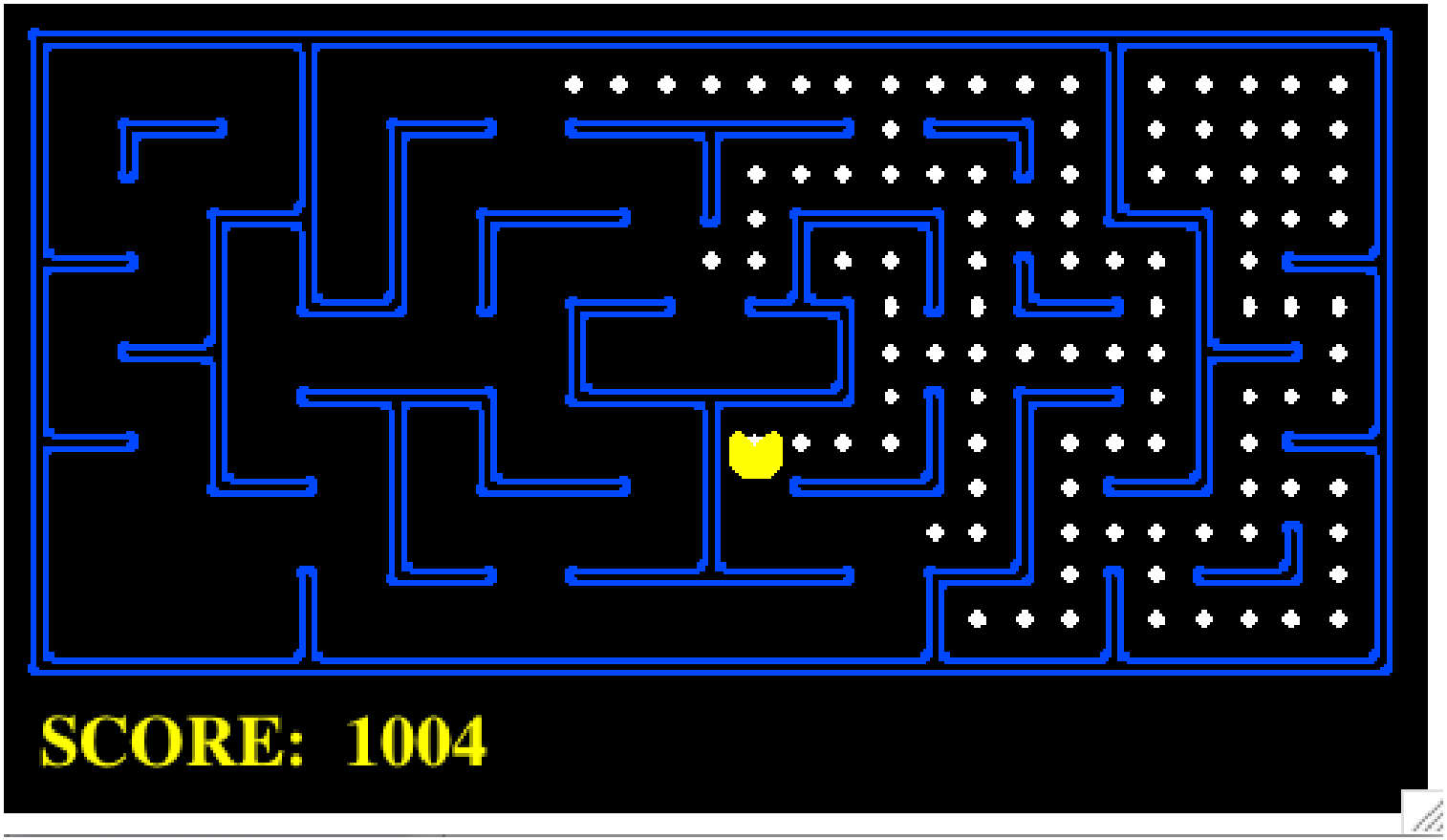
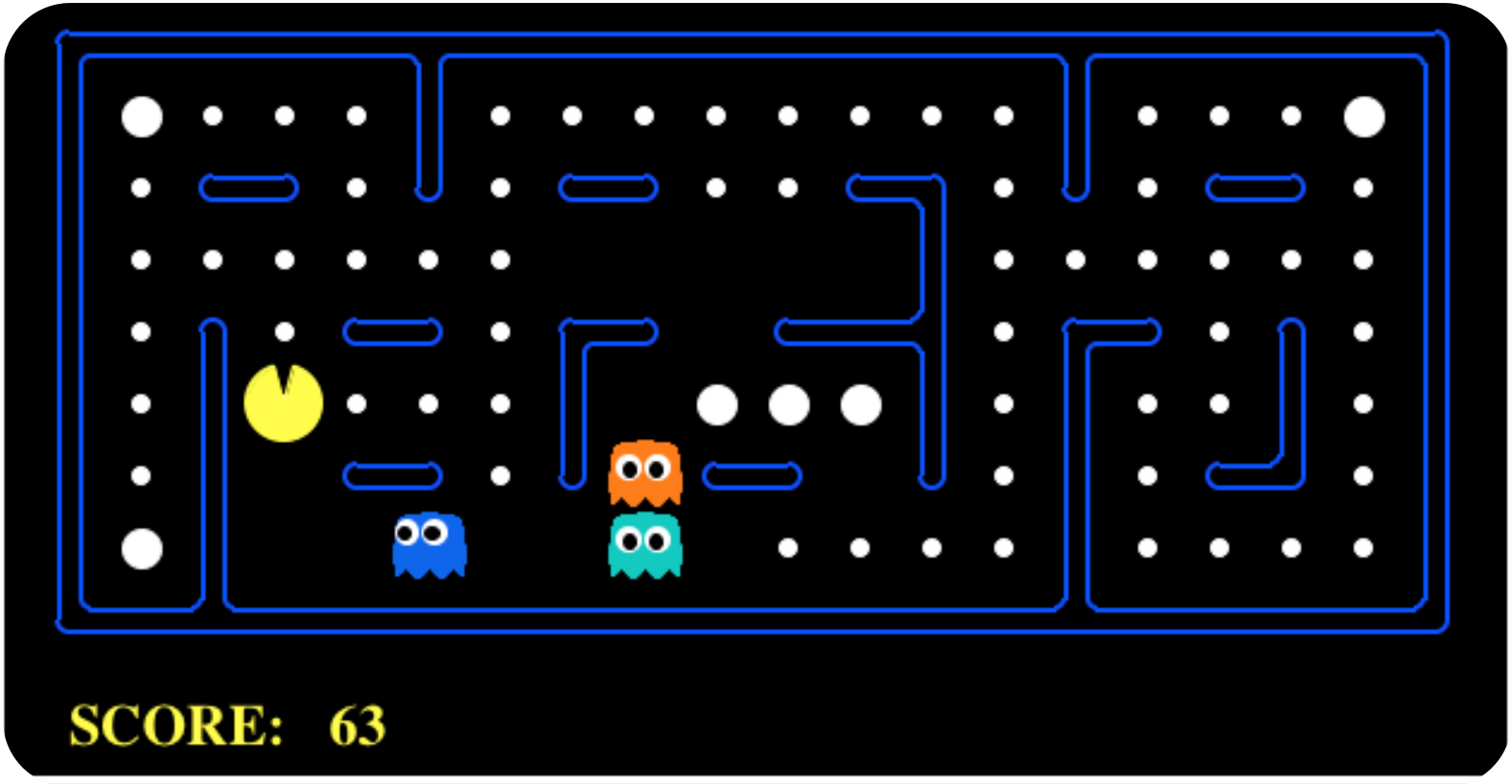
Contest Results



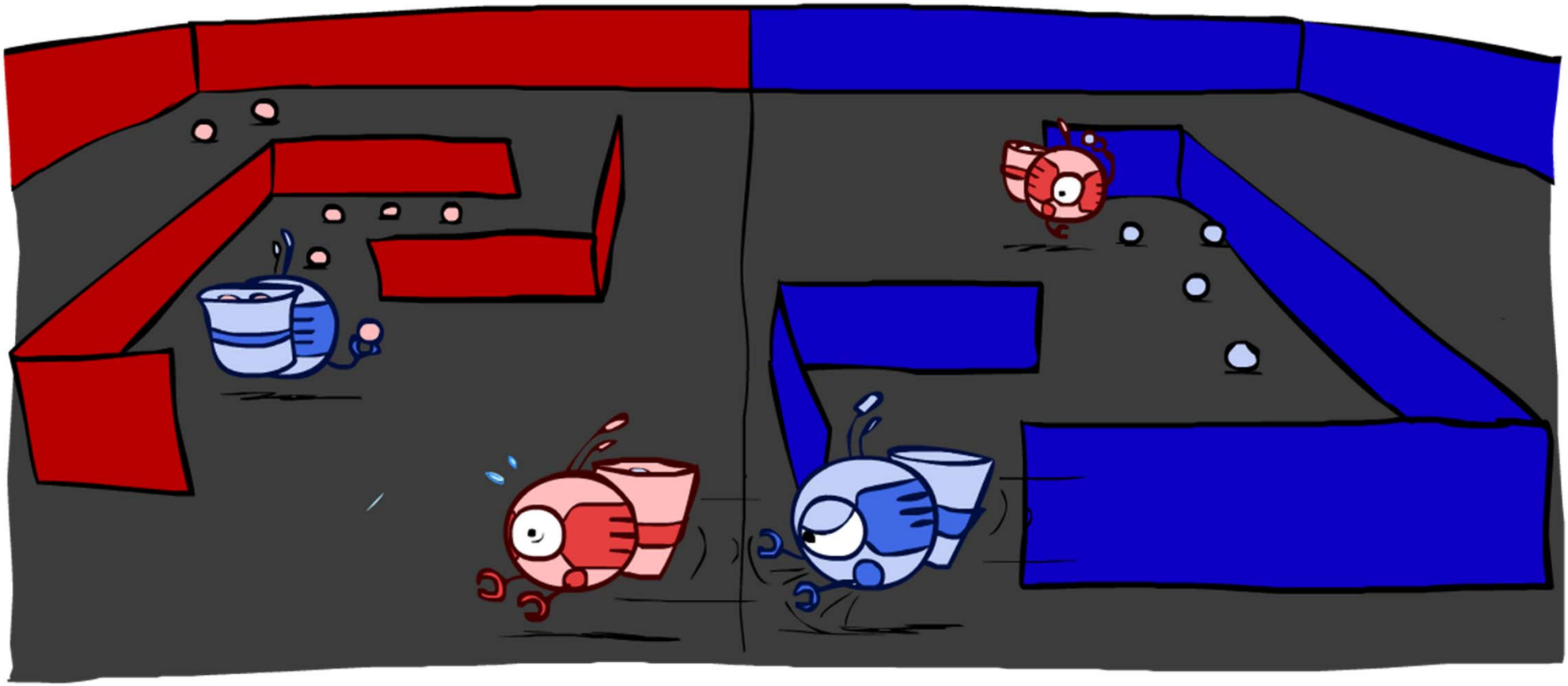
P1 Mini-Contest Results!



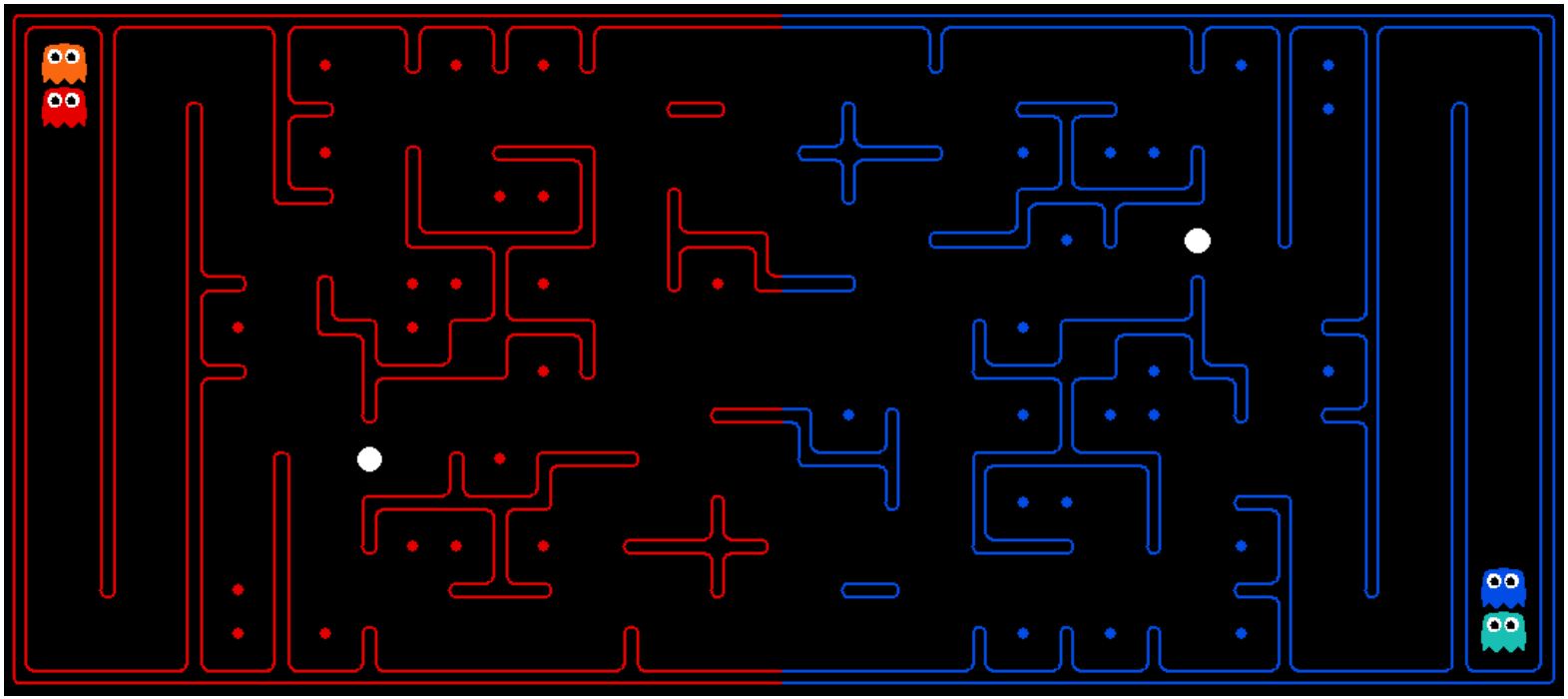
P2 Mini-Contest Results!



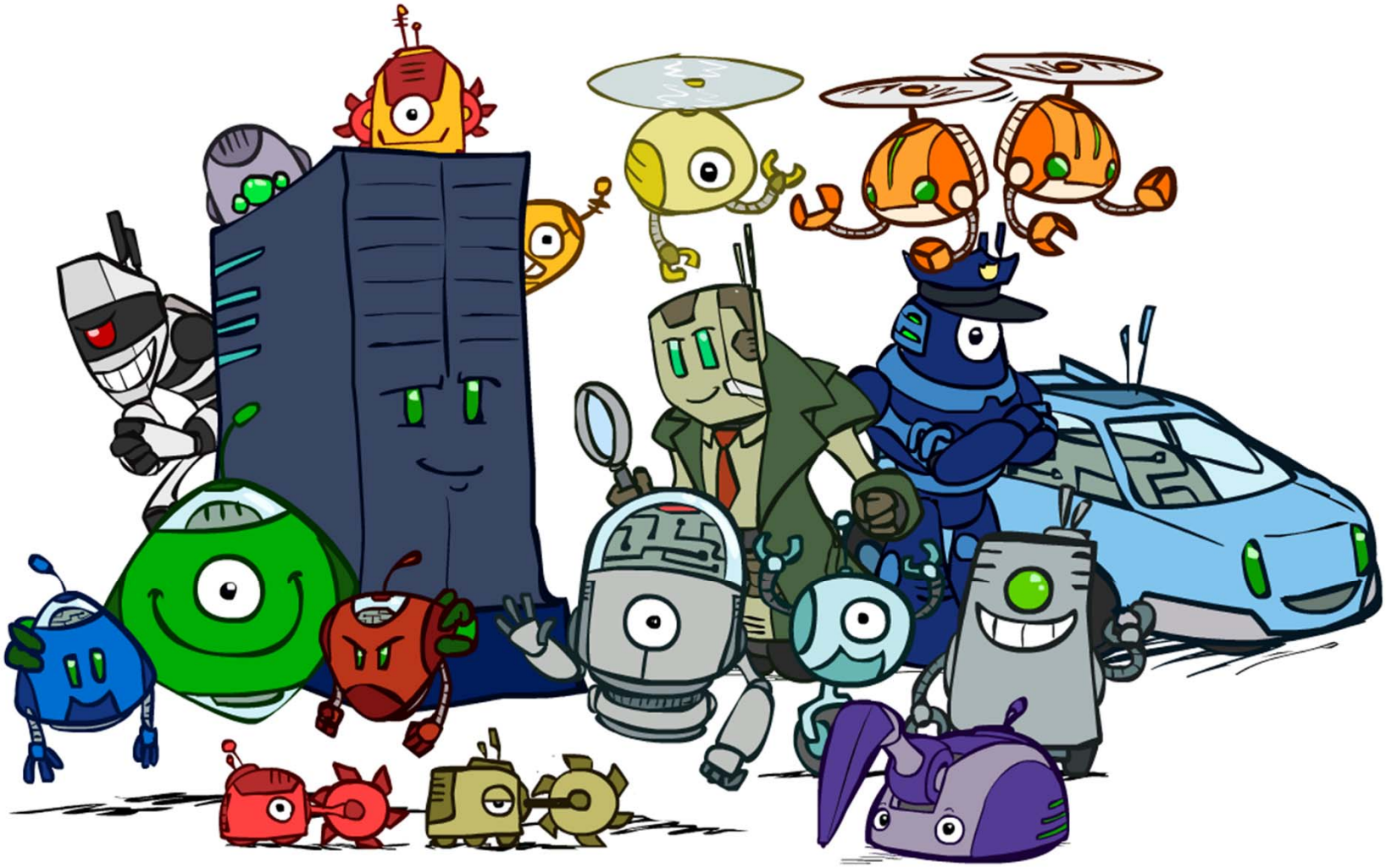
Final Contest



Final Contest Results!



- Challenges: Long term strategy, multiple agents, adversarial utilities, uncertainty about other agents' positions, plans, etc.



Starcraft

Starcraft

What is Starcraft?

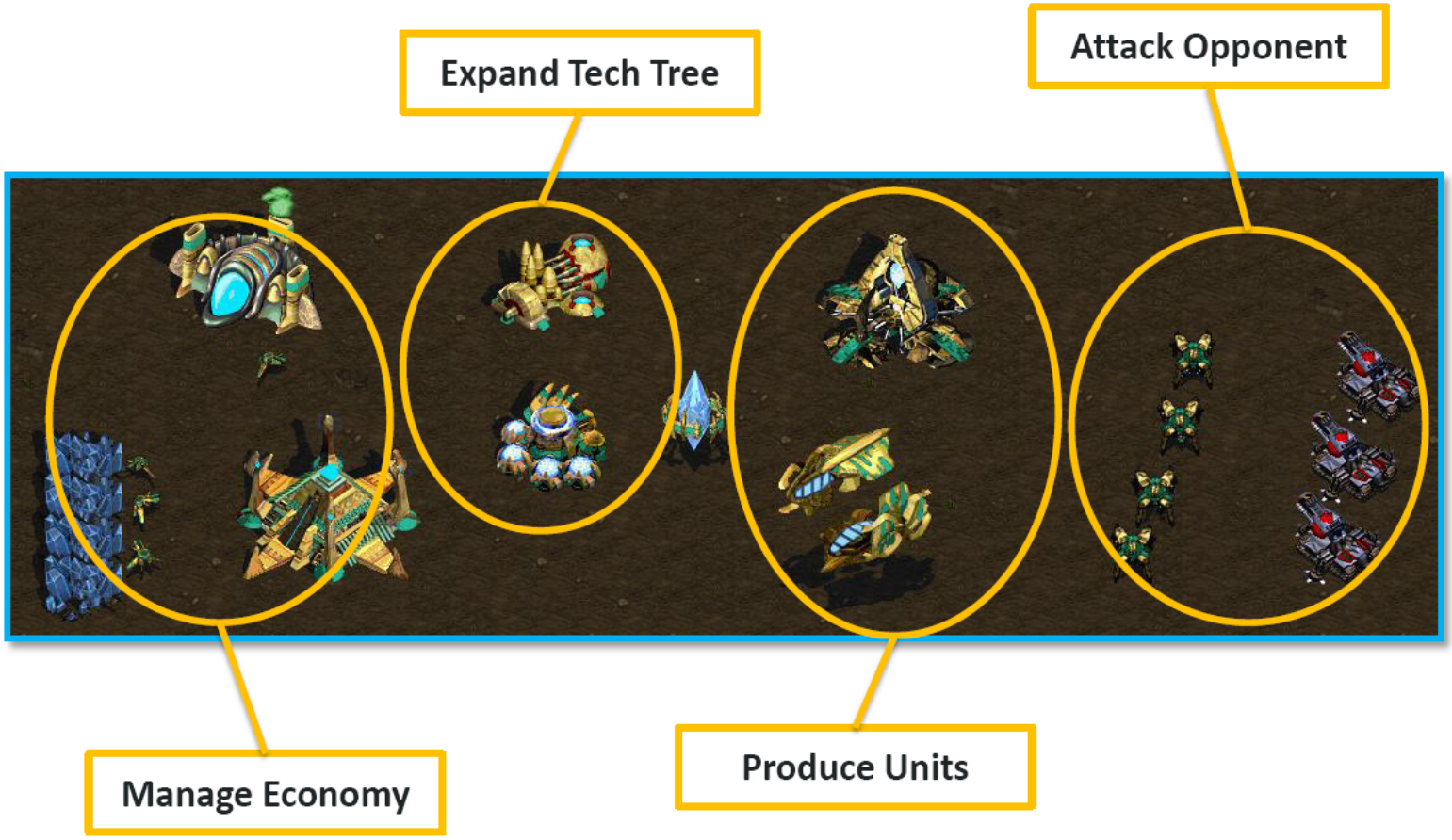
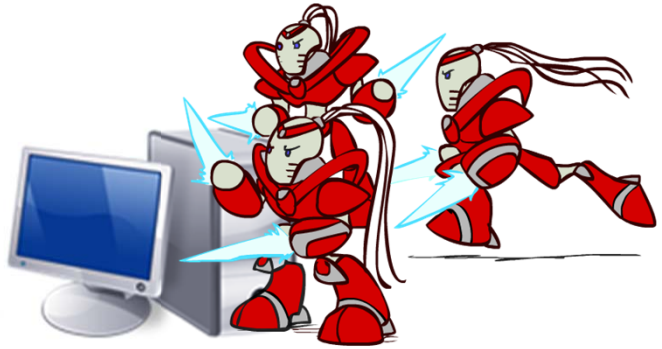


Image from Ben Weber

Why is Starcraft Hard?

- The game of Starcraft is:
  - Adversarial
  - Long Horizon
  - Partially Observable
  - Realtime
  - Huge branching factor
  - Concurrent
  - Resource-rich
  - …
- No single algorithm (e.g. minimax) will solve it off-the-shelf!

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…

The Berkeley Overmind

Search: path planning

CSPs: base layout

Minimax: targeting

Learning: micro control

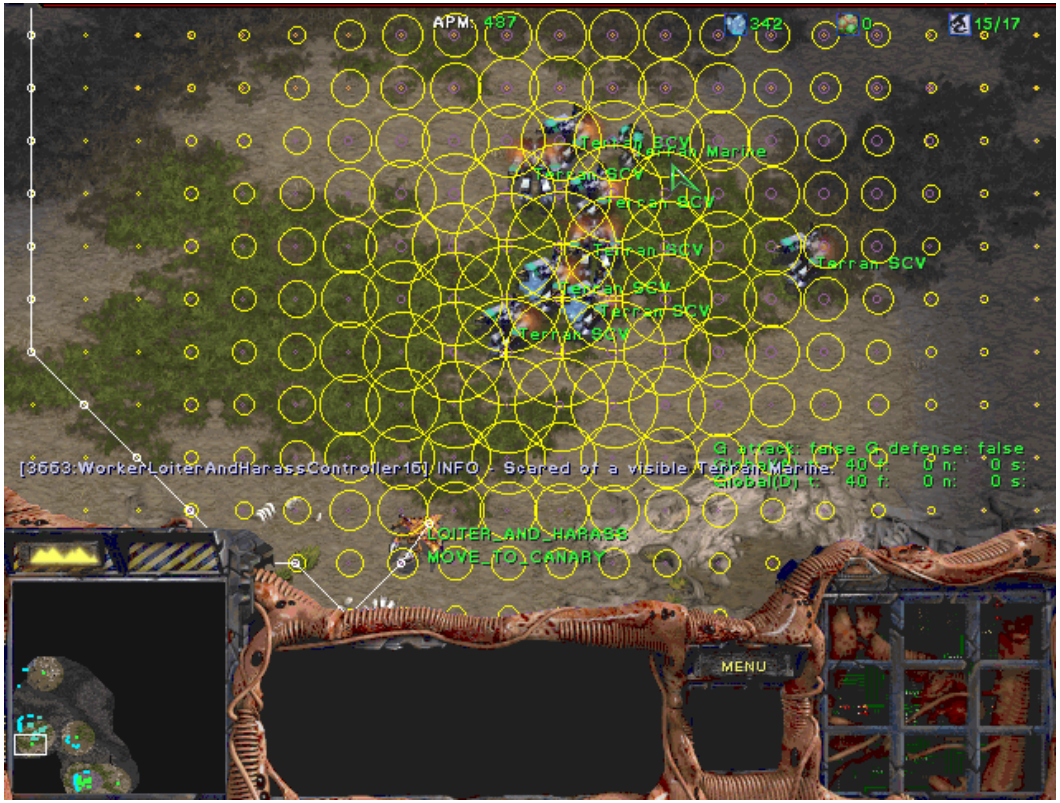
Inference: tracking units

Scheduling: resources

Hierarchical control

http://overmind.eecs.berkeley.edu

Search for Pathing



[Pathing]

Minimax for Targeting

[Targeting]

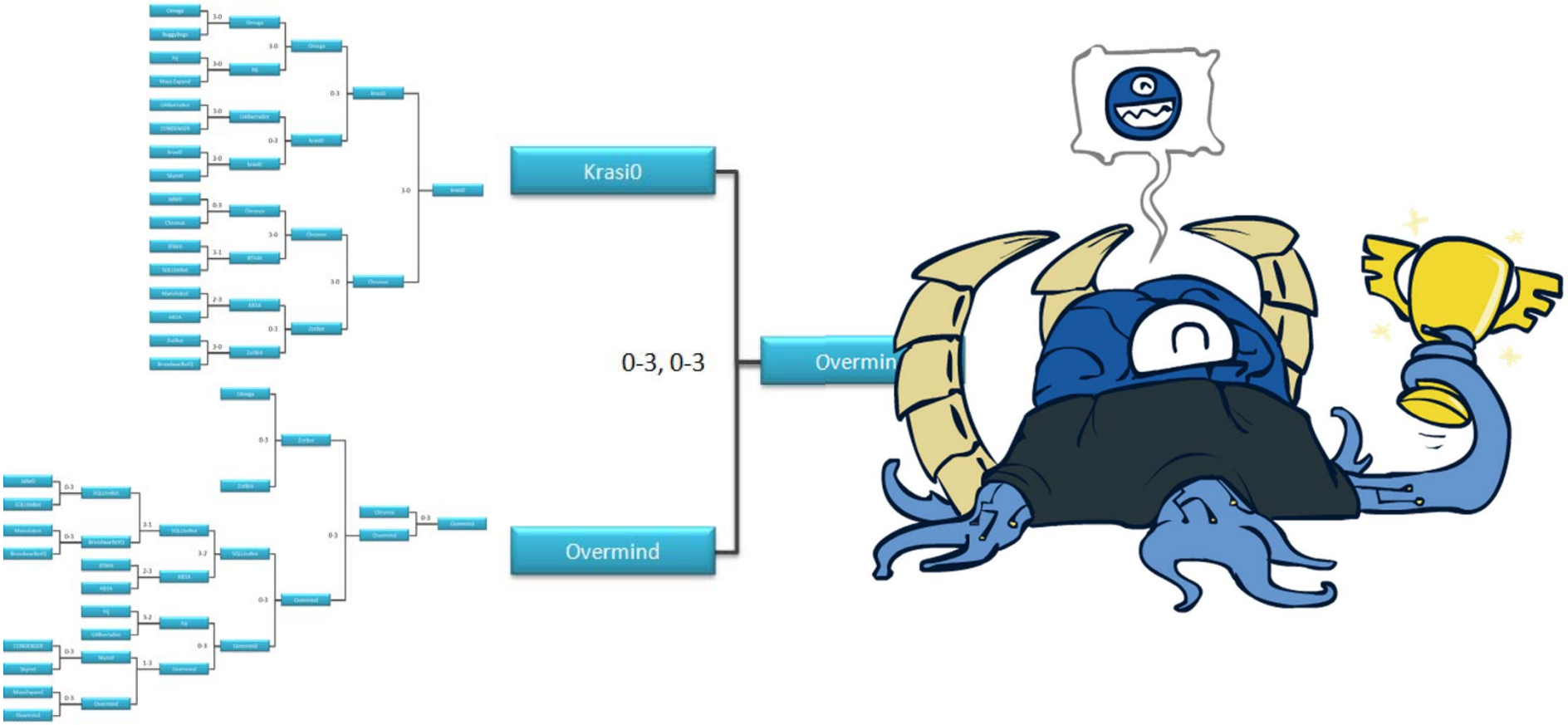
Machine Learning for Micro Control

[RL, Potential Fields]

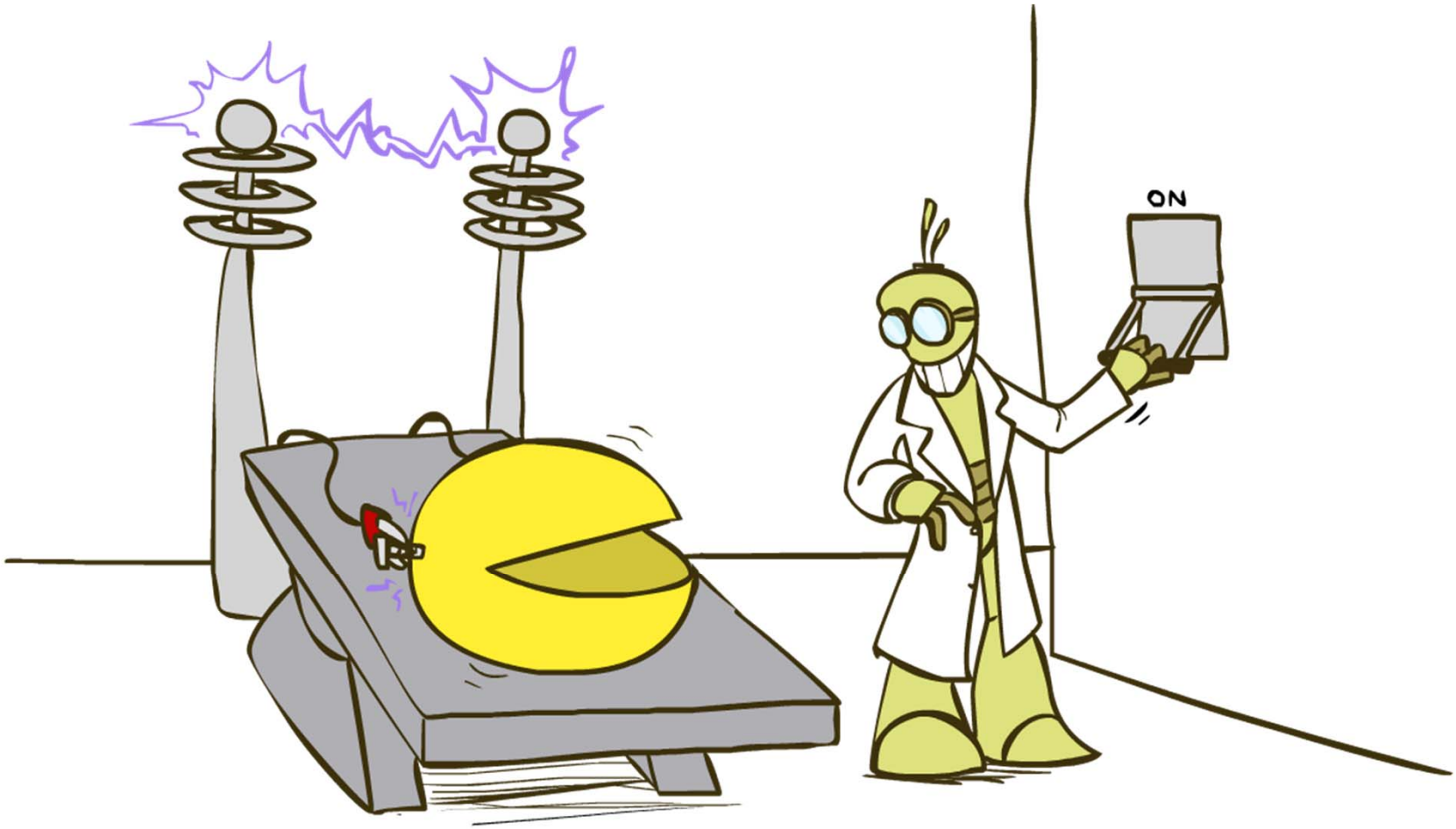
Inference / VPI / Scouting

[Scouting]

AIIDE 2010 Competition

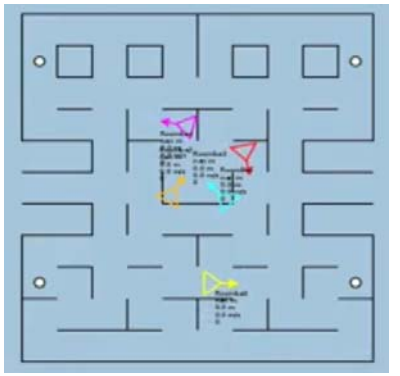


Pac-Man Beyond the Game!



Pacman: Beyond Simulation?

ROOMBA PACMAN



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

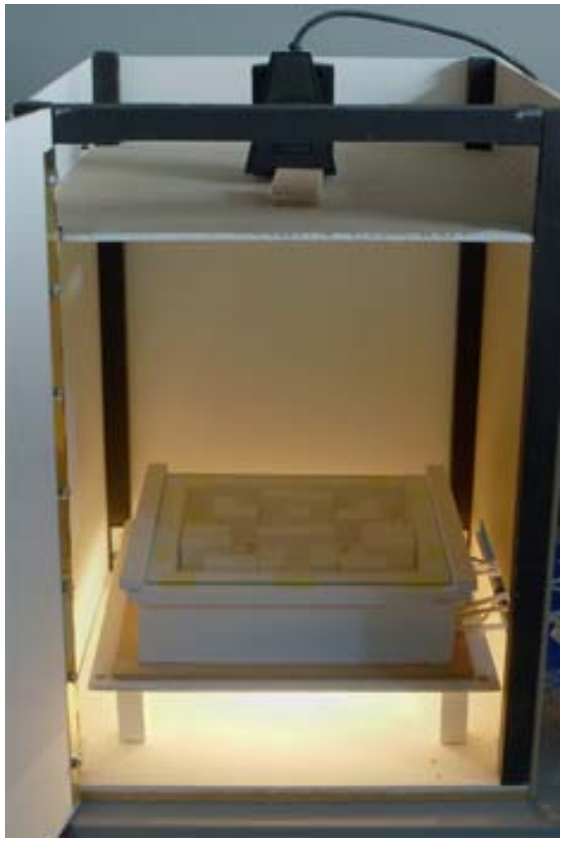
[DEMO]

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



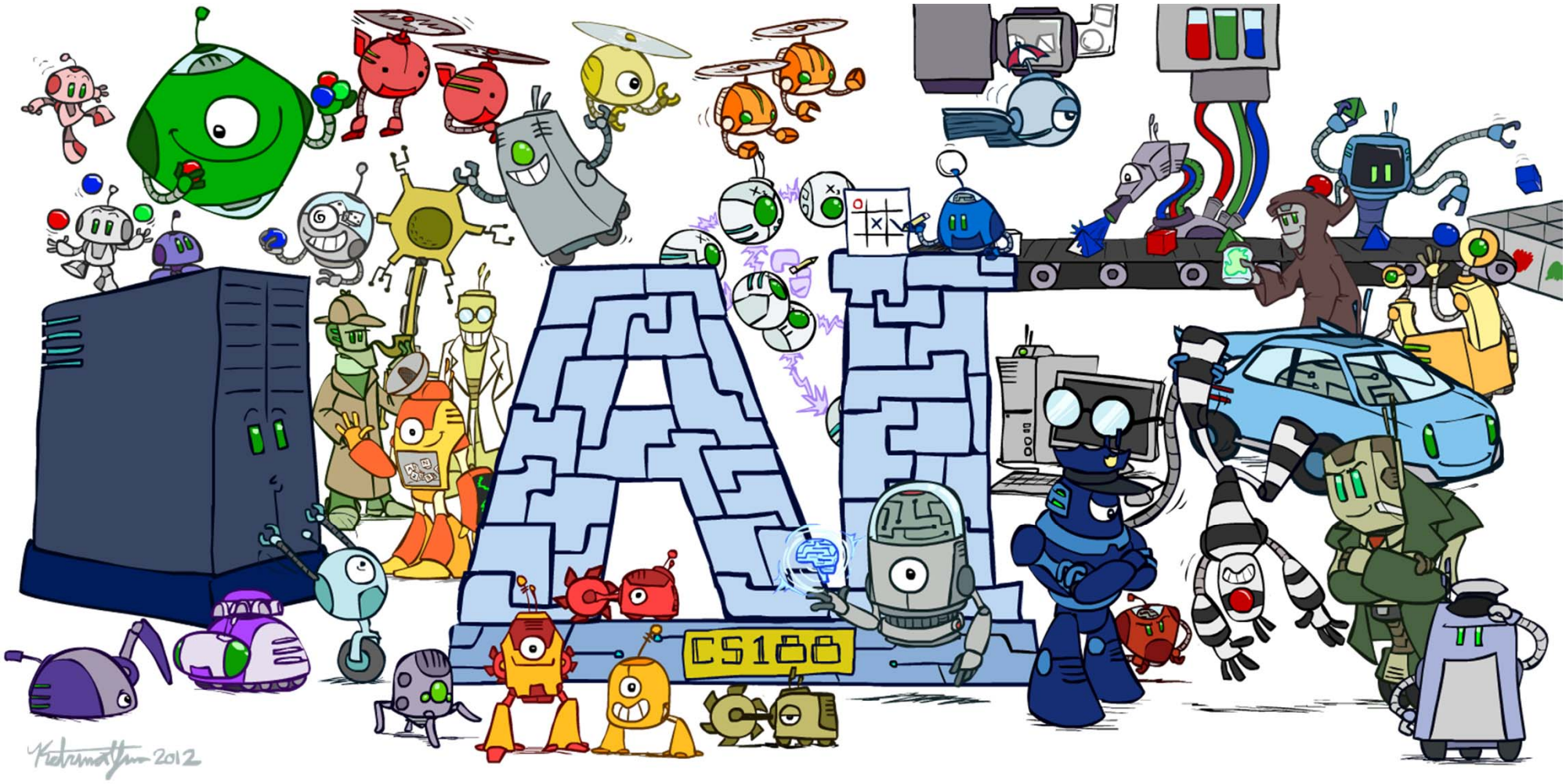
Where to Go Next?

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: cs189
  - Convex optimization: ee127
  - Cognitive modeling: cog sci 131
  - Graphical models: cs281a
  - Learning theory: cs281b
  - Vision: cs280
  - Robotics: cs287
  - NLP: cs288
  - … and more; ask if you're interested
- Next term:
  - cs189, ee127, cog sci 131, cs281, cs281b

That’s It!

- Help us out with some course evaluations
- Have a good break, and always maximize your expected utilities!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Kevin Matthew 2012