Autonomous Multiagent Systems

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Week 3, Thursday (9/12)

Programming Assignments

- #2: Success?

- #3: On the web

Any Questions?

- "All FSMs are created equal yet at the same time they are prisoners of their fixed topology connections."

Exercises

- Differences between creatures, TCA
- Non-reactive soccer-playing behaviors

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Non-reactive soccer playing

- Reactive: direct mapping from situation to action
- It's not as much the behavior, as how it's done
- Is there any memory?
- Is there a model?
- Examples:
  - Learning about opponent strengths/weaknesses
  - Plan ahead to approach ball from a good angle
  - Plan the right power of later shots
  - Set plays
  - Stop running when tired (?)

Student-led Discussions

- Start a discussion based on the readings

GOAL: Keep it going as long as possible

Suggestions

- Pose some interesting hard-to-answer questions
  – There doesn't need to be a "right answer"
- Make a controversial statement and defend it
- Email something to get people thinking
- Bounce ideas off of me ahead of time

Ladies and Gentlemen . . .

. . . Gaaaaaaaaaaaaaaalen Menzel

Question

- Is TCA a generalization of subsumption?

- Can you take anything implemented in subsumption and implement it similarly in TCA?

Follow-up

- Is there anything that a really distributed system gets you that is impossible to obtain with a centralized control module?

- Vice versa?

Could Simmons have just used subsumption?

- Why or why not?

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Brooks' Goals

- Autonomous mobile agents that are seen as intelligent
- No interest in demonstrating how humans work
- No interest in applications
- Timely, robust, do something

Representation

- Necessary?

  "We hypothesize that much of even human level activity is similarly a reflection of the world through very simple mechanisms without detailed representations."

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Pengi

- Penguin chases bees in a maze
- Can kill them with ice blocks
- Bees can kill you with ice blocks too
- What would it mean to do planning in this domain?

Group 1: Design a Pengi controller using subsumption

Group 2: Design a Pengi controller using TCA

Modules

“When researchers working on a particular module get to choose both the inputs and the outputs that specify the module requirements I believe there is little chance the work they do will fit into a complete intelligent system.”

$\boxed{\text{Does this apply to TCA?}}$

Which approach do you prefer?

- Why?