

CS344M

Autonomous Multiagent Systems

Patrick MacAlpine

Department of Computer Science
The University of Texas at Austin

Good Afternoon, Colleagues

Are there any questions?

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- Is there a deceit paradigm?
- Marketing oriented approaches?
- Are basis behaviors relevant?
- Why does CMUnited kick ball to corners?
- How does self interest benefit system as a whole?

Logistics

- Programming assignment 3 — how was it?

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- Programming assignment 4

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- Final “Exam”: Wednesday, December 9, 7:00-10:00 pm

Individual Agents

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“Sophisticated individual agent reasoning can increase MAS coherence because each individual agent can reason about nonlocal effects of local actions, form expectations of the behavior of others, or explain and possibly repair conflicts and harmful interactions.”

“Reactive agents do not have representations of their environment and act using a stimulus-response type of behavior; they respond to the present state of the environment in which they are situated.”

Individual Agents

- Purely reactive agents have disadvantages
 - Can't react to nonlocal info or predict effects on global behavior
 - hard to engineer
- Purely reactive agents have advantages
 - no need to revise world model
 - robustness and fault tolerance if one agent fails
- Hybrid approach better
- Hard to evaluate agent architecture against one another

Conflicts, Resources

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- Market-based methods/auctions
- Negotiation, game theory

Multiagent Planning

- Complex individual agents
- Teamwork modeling
 - Modeling of teammates and opponents
 - Ad-hoc teamwork
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- (pursuit slides)

Pursuit Activity

Group 1: homogeneous, non-communicating

Group 2: homogeneous, communicating

Group 3: heterogeneous, non-communicating

Group 4: heterogeneous, communicating

Communication

- Middle agents (brokers)
- Standard languages
- Ontologies

More next week

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- Hit a complexity limit?
 - (Subsumption or 3T more prevalent?)

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 - * flocking
 - * foraging
 - Anything special about this domain? Or could it apply just as well to others?

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- Can human behavior be thought of as arising from a set of basis behaviors?
- What kinds of basis behaviors would they be?
- Would they be the same as the ones Mataric listed?
- Are there others?

CMUnited-98

- The details of a complete agent
- Details of complete UT Austin Villa 3D agent optional reading
- Any comments?