CS344M Autonomous Multiagent Systems Spring 2008

Prof: Peter Stone

Department of Computer Sciences The University of Texas at Austin

Good Afternoon, Colleagues

Are there any questions?



- Final reports due to me on Thursday
- Just one point off if turned in at my office by Friday at 3:30pm
 - Only if you're in class on Thursday!



• Should agents model emotions?



Discussion

The Turing Test





• You've read.



- You've read.
- You've reacted and formed opinions.



- You've read.
- You've reacted and formed opinions.
- You've spoken.



- You've read.
- You've reacted and formed opinions.
- You've spoken.
- You've written.



- You've read.
- You've reacted and formed opinions.
- You've spoken.
- You've written.
- You've coded for a task with no right answer and no way of knowing that you're done.



- You've read.
- You've reacted and formed opinions.
- You've spoken.
- You've written.
- You've coded for a task with no right answer and no way of knowing that you're done.

Do you like CS research?



1. Autonomous agents:

What is an agent?



- 1. Autonomous agents:
- 2. Agent architectures:

What is an agent? Subsumption, TCA



- 1. Autonomous agents:
- 2. Agent architectures:
- 3. Multiagent Systems:

What is an agent? Subsumption, TCA Overview, subsumption



- 1. Autonomous agents:
 - 2. Agent architectures:
 - 3. Multiagent Systems:

What is an agent? Subsumption, TCA Overview, subsumption

4. Communication and Teamwork: KQML, Joint Intentions



- 1. Autonomous agents:
- 2. Agent architectures:
- 3. Multiagent Systems:
- 4. Communication and Teamwork:
- 5. RoboCup case studies

UTCS

What is an agent? Subsumption, TCA

Overview, subsumption

ork: KQML, Joint Intentions

- 1. Autonomous agents:
- 2. Agent architectures:
- 3. Multiagent Systems:
- 4. Communication and Teamwork: KQML, Joint Intentions
- 5. RoboCup case studies
- 6. Swarms and ant-based approaches:

"Go to the Ant"

What is an agent?

Subsumption, TCA

Overview, subsumption



- 1. Autonomous agents:What is an agent?2. Agent architectures:Subsumption, TCA3. Multiagent Systems:Overview, subsumption4. Communication and Teamwork:KQML, Joint Intentions5. RoboCup case studies6. Swarms and ant-based approaches:
- 7. **Applications:** Air traffic, intersection traffic



1. Autonomous agents:What is an agent?2. Agent architectures:Subsumption, TCA3. Multiagent Systems:Overview, subsumption4. Communication and Teamwork:KQML, Joint Intentions5. RoboCup case studies6. Swarms and ant-based approaches:6. Swarms and ant-based approaches:"Go to the Ant"7. Applications:Air traffic, intersection traffic8. Game theory:Nash equilibrium



What is an agent? 1. Autonomous agents: 2. Agent architectures: Subsumption, TCA 3. Multiagent Systems: Overview, subsumption 4. Communication and Teamwork: KQML, Joint Intentions 5. RoboCup case studies "Go to the Ant" 6. Swarms and ant-based approaches: Air traffic, intersection traffic 7. Applications: 8. Game theory: Nash equilibrium 9. Statistical measurements: t-tests



What is an agent? 1. Autonomous agents: 2. Agent architectures: Subsumption, TCA 3. Multiagent Systems: Overview, subsumption 4. Communication and Teamwork: KQML, Joint Intentions 5. RoboCup case studies "Go to the Ant" 6. Swarms and ant-based approaches: 7. Applications: Air traffic, intersection traffic 8. Game theory: Nash equilibrium 9. Statistical measurements: t-tests 10. Agent modeling: coaching, RMM, tracking teams



What is an agent? 1. Autonomous agents: 2. Agent architectures: Subsumption, TCA 3. Multiagent Systems: Overview, subsumption 4. Communication and Teamwork: KQML, Joint Intentions 5. RoboCup case studies "Go to the Ant" 6. Swarms and ant-based approaches: Air traffic, intersection traffic 7. Applications: 8. Game theory: Nash equilibrium 9. Statistical measurements: t-tests 10. Agent modeling: coaching, RMM, tracking teams 11. Distributed rational decision making: voting...



What is an agent? 1. Autonomous agents: 2. Agent architectures: Subsumption, TCA 3. Multiagent Systems: Overview, subsumption 4. Communication and Teamwork: KQML, Joint Intentions 5. RoboCup case studies "Go to the Ant" 6. Swarms and ant-based approaches: Air traffic, intersection traffic 7. Applications: 8. Game theory: Nash equilibrium 9. Statistical measurements: t-tests 10. Agent modeling: coaching, RMM, tracking teams 11. Distributed rational decision making: voting... 12. Auctions: FCC spectrum auctions, TAC



1. Autonomous agents: What is an agent? 2. Agent architectures: Subsumption, TCA 3. Multiagent Systems: Overview, subsumption 4. Communication and Teamwork: KQML, Joint Intentions 5. RoboCup case studies "Go to the Ant" 6. Swarms and ant-based approaches: Air traffic, intersection traffic 7. Applications: Nash equilibrium 8. Game theory: 9. Statistical measurements: t-tests 10. Agent modeling: coaching, RMM, tracking teams 11. Distributed rational decision making: voting... 12. Auctions: FCC spectrum auctions, TAC 13. Multiagent learning: multiagent RL



1. Autonomous agents: What is an agent? 2. Agent architectures: Subsumption, TCA 3. Multiagent Systems: Overview, subsumption 4. Communication and Teamwork: KQML, Joint Intentions 5. RoboCup case studies "Go to the Ant" 6. Swarms and ant-based approaches: Air traffic, intersection traffic 7. Applications: 8. Game theory: Nash equilibrium 9. Statistical measurements: t-tests 10. Agent modeling: coaching, RMM, tracking teams 11. Distributed rational decision making: voting... FCC spectrum auctions, TAC 12. Auctions: 13. Multiagent learning: multiagent RL 14. Entertainment agents chatbots, music bots



• What is an agent?



- I've been impressed by the levels of discussions we've had in class
- I'm happy with the progress in writing and speaking that many of you have made
- I'm proud of all of you for sticking with it through such a demanding course



- I've been impressed by the levels of discussions we've had in class
- I'm happy with the progress in writing and speaking that many of you have made
- I'm proud of all of you for sticking with it through such a demanding course







• Positive and negative feedback useful



Surveys

- Positive **and** negative feedback useful
- Invitation to send more feedback by email



Surveys

- Positive **and** negative feedback useful
- Invitation to send more feedback by email
 - Should the course be run again?
 - How should it change?



Surveys

- Positive **and** negative feedback useful
- Invitation to send more feedback by email
 - Should the course be run again?
 - How should it change?
- Most important: course rating, instructor rating, written comments



Next Meeting

• The tournament!



Next Meeting

- The tournament!
- Wednesday, May 7th
- TAY 3.128
- 10am-noon



Next Meeting

- The tournament!
- Wednesday, May 7th
- TAY 3.128
- 10am-noon
- Come prepared to talk (informally) about your team

