

Agent architectures.
Smart conversations.
Agents for pedagogical interaction.
Managing multi-agent interactions.
Language and gesture as control modalities.

Course Syllabus

8:30 - 8:40 Badler (10 min.)

Welcome and Overview

8:40 - 9:30 Badler (50 min.)

Action Primitives

- Computational requirements for smarter embodied agents
- Faces, arms, legs, and eyes

Action Representation

- Non-linear animation
- Parallel Transition Networks
- Planning
- Control, interruption, surprise, and opportunism

9:30 - 10:00 Cassell (30 min.)

Conversational Agents

What It Means to be "Smart" about Conversation

- conversation is composed of propositional & interactional smarts
- conversation is advanced by verbal and nonverbal means

How Humans are Smart about Conversation

- we pick up on very tiny cues in both speech and non-verbal channel

The Role of Conversational Smarts in Animated Agents

- Increased smoothness of interaction with humans
- Less disfluency
- Allows both system & human to take the initiative in the interaction

10:00 - 10:15 (break) (15 min.)

10:15 - 11:00 Cassell (45 min.)

Agent Integration

- How to incorporate conversational smarts into agent architectures
- KQML frames for verbal & nonverbal, propositional & interactional data
- Maintaining verbal and non-verbal focus throughout the architecture
- Modeling social and goal-oriented behaviors
- Some examples of smart conversational agents

11:00 - 12:00 Hayes-Roth (60 min.)

Communicative Agents

- Agent architectures: Blackboards

- Virtual actors and improvisation
- Natural language dialogue
- Entertainment applications

12:00 - 1:30 (lunch) (90 min.)

1:30 - 2:15 Johnson (45 min.)

Pedagogical Agents

- The SOAR agent architecture
- Education and training applications

2:15 - 3:00 Rickel (45 min.)

Task-Oriented Collaboration

- Plan construction, revision and execution
- Plan recognition
- Task-oriented dialogue
- Teams

3:00 - 3:15 (break) (15 min.)

3:15 - 4:00 Lester (45 min.)

Personality-Rich Pedagogical Agents

- Situated emotive communication
- The emotive-kinesthetic behavior sequencing framework
- Designing emotive behavior spaces
- Structuring emotive behavior spaces - pedagogical speech acts
- Deictic believability
- Ambiguity appraisal
- Gesture & locomotion planning
- Utterance planning
- Coordinating deictic gesture, locomotion, and speech

4:00 - 4:30 Badler (30 min.)

Natural Language Interfaces

- Parsers and semantic tagging
- Space and motion references
- Agent manner
- Action dictionaries

4:30 - 5:00 Panel (all) (30 min.)

Questions and Issues