

(Embodied) Interface Agents

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Agenda

- UI Agents
 - Issues
 - Examples



Yet To Come...?



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Interaction Paradigms

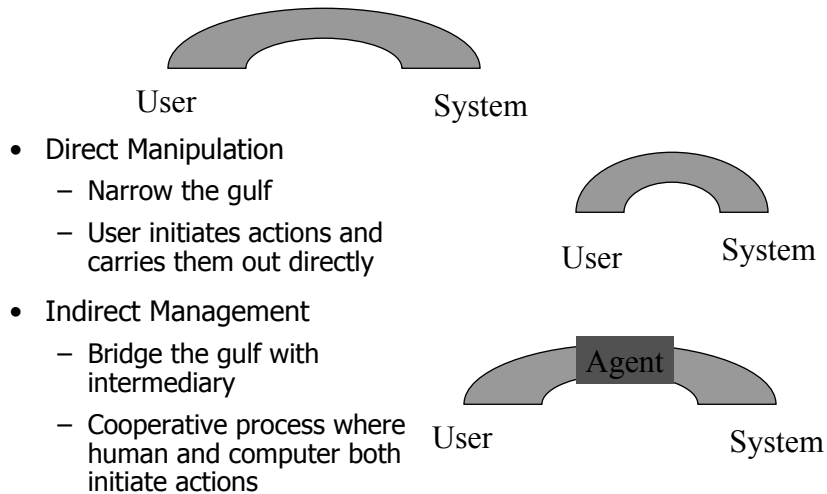
- Direct Manipulation
 - User initiates actions and carries them out directly
- Indirect Management
 - Cooperative process where human and computer both initiate actions

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Agency & Norman's Gulfs



Autonomous Agent

- Personal assistant who collaborates with user to accomplish tasks
 - Level of autonomy can vary
 - Takes directions
 - Takes initiative
 - May learn user's preferences
 - Human appearance?



Terminology

- IVA – Intelligent Virtual Agent (Assistant)
- ECA – Embodied Conversational Agent
- Chatterbot, Chatbot



Examples



Peedy the Parrot

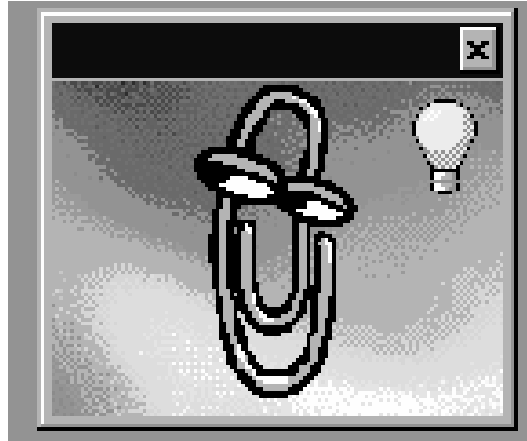
Merlin the Wizard

Genie

Robby the Robot



Ack! It's the Paper Clip



Challenges

- Two challenges exist
 - Competence - Does the agent have the requisite knowledge to truly assist the user?
 - Trust - Does the user feel comfortable delegating task to agent?



More help...



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Possibilities

- What could agents do for us?

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Agency Approaches

- 1. Application is semi-autonomous agent
 - User programs rules a priori for how agent should perform
- 2. Knowledge-based
 - Give the agent interface domain knowledge and user knowledge
- 3. Learning approach
 - Give agent minimal domain knowledge, then have it watch user and learn behaviors



Learning Approach

- Like a personal assistant who gets better and better
- Learns by
 - 1. Looking over shoulder, watching actions
 - 2. Direct and indirect feedback
 - 3. Hypothetical examples
 - 4. Asking other agents for advice



Examples

- Email agent
 - Prioritize, delete, sort, ...
 - Looks at fields to make decisions (How weighted?)
 - Has “tell-me” and “do-it” thresholds for individual actions
 - Has facial expressions to communicate state
- Meeting scheduler
 - Very personalized behaviors



Examples

- News filtering
 - Watches what you read, then does filtering
 - Uses keywords
 - Needs deeper natural language help



Examples

- Entertainment agent
 - Agent memorizes user's preferences
 - Goes out and talks to other agents and looks for correlations
 - Makes recommendations



Videos

- Vision: Apple's *Knowledge Navigator*
 - Early '90's
- Reality: MIT's REA
 - CHI '99



Issues

- Should agents be made human-like?
- If so, should they have personalities?
- How can we guarantee privacy if agent collaboration occurs?
- Should someone be held responsible for what their agent does?

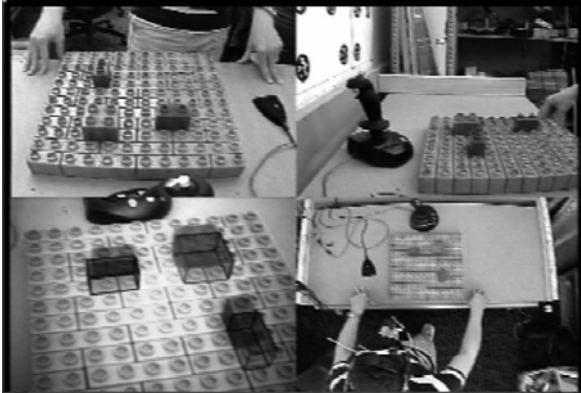


Project

- P3 feedback
- Will have reports for you to look at
- Demo sign up



Would you like to participate in an Augmented Reality Research Study?



- An investigation of ways of giving instructions using 3D graphics
- Experience a see-through head-worn display that blends 3D graphics with the real world

Will involve approximately 90 minutes of your time at \$5/half-hour

**If you are interested in participating in this study,
please contact Cindy Robertson at
leistner@cc.gatech.edu.**

InfoVis HW

- Pile on desk



Upcoming

- CSCW
- Ubiquitous Computing
- Project presentations

