Today:
Agent vs User Responsibilities

- Starfire Video
- Utility-Based Agents
- Iterative Improvement Algorithms
Anthropomorphic Agents

- Antropomorphization is decreasing
  - 1987: Realistic Looking Human (Phil)
    - Thinks for user
  - 1989: Cartoon (Robi, and friends)
    - Supervise simple tasks (e.g. simulation)
  - 1995: Invisible (no name)
    - search
Where are the agents?

This was our little way of poking fun at some other video prototypes [Apple’s Phil] that have featured anthropomorphic agents that were so perfect that you would have sworn they were some actor dressed up in funny clothes; actually, they were some actor dressed up in funny clothes. Agents are currently as dumb as posts and likely to remain so for a long, long time.

– Bruce Tognazzini, 1995
Make Agent’s Jobs Simple

For the short term, we need to place the burden for information annotation and interpretation on people, reducing the challenge of creating an effective agent to a manageable level. With a sufficiently detailed description, agents should be able to fetch a document within seconds from anywhere in the information space. Should the user have failed to provide enough detail, agents should be offered questions they can ask to narrow the field. ...
Make Agent’s Jobs Simple

Agents will be successful not because they are capable of inferring the “meaning” of a given piece of material but because the author or annotator will have supplied the raw material from which the agent can form its queries. Users will experience the illusion that they have an agent of great discernment. They will really only have an information system that is well constructed, well organized, and a snap to traverse—at 500 million instructions per second.

What is an Agent?

- Web search engine?
- Grep?
- Sherlock?
Utility-Based Agent
Example 1: Party Planner

- **Utility function:** $\sum_{j=1}^{n} [\text{dist}(p_i, q_j) - \text{optimalDist}(j)]^2$
  - Minimize unhappiness
  - Multi agent hill climbing
Chapter 3: Uninformed Search

- You have read chapter 3
- “Unfortunately, [uninformed search] strategies are incredibly inefficient in most cases”
Chapter 4: Informed Search

- Informed Search used problem-specific knowledge to reduce search space to a manageable size
- Pro: efficient for more complex problems
- Con: no guarantee that optimal (or any solution) will be found
Hill-Climbing

- Is an iterative improvement algorithm
- Book page 112
Parallel Hill-Climbing

- Extremely complex problem solving because everything changes all the time
- Large chance of ending up in local minima

Solution: make user part of problem solving

- Combined agent + user problem space exploration
- **Agent** helps to visualize and generate problem space
- **User** can recognize and modify partial solutions
Example: Kitchen Design

- Special case of Party Planner
- Goal: find ideal arrangement of appliances in kitchen
Todo

- **Reading**: chapter 4.4
- **Projects**: verify your name on project list: `../project-list.html`