Agents that Reduce Work and Information Overload

Pattie Maes
Communications of the ACM
July 1987, Vol.37, No. 7, pp.30-40
Interface Agent

• The agent is not necessarily an interface between the computer and the user.
• The most successful interface agents are those that do not prohibit the user from taking actions and fulfilling tasks personally.
• The user is engaged in a cooperative process in which human and computer agents both
  – initiate communication,
  – monitor events, and
  – perform tasks
Sources of Learning

- The agent observes and imitates the user’s behavior
- The agent adapts based on user feedback
- The agent can be trained/programmed by the user on the basis of examples
- The agent can ask for advice from other more experienced agents assisting other users.
Maxims [Maes et al, 1994]

- Maxims learns to prioritize, delete, sort, and archive mail messages on behalf of the user.
- The agent continuously “looks over the shoulder” of the user as the user deals with his/her emails.
- Maxims learns by memory-based reasoning
  - memorizes situation-action pairs
  - keeps track of sender, receiver, cc, keywords in the subject line etc.

User Feedback
State of the Agent

Calendar Agent
Confidence in Predictions

NewT Personalized News Filtering
Software Agents [Maes, MIT]

- Human-Computer Interaction
- Bottom-Up Approach to AI
- The Network as An Intelligent Machine
  - Completely distributed
  - Mix of humans and machines
  - Extremely robust and fault-tolerant
- Firefly
  - Collaborative filtering
  - Personalized content and services

Entertainment Selection Agent

© CACM 1994