Applications

1. Application Areas

- Agents are indicated for domains where autonomous action is required.
- Multiagent systems are indicated for domains where:
  - control, data, expertise are distributed;
  - processing nodes have competing/conflicting views/perspectives or objectives;
  - centralised control is impossible or impractical;
  - Multiagent systems are indicated for domains where autonomous action is required.

1.1 Interface Agents

- The idea is to move away from the direct manipulation paradigm that has dominated for so long.
- In pioneering work at MIT Media Lab (Pattie Maes): interface agents:
  - news reader;
  - web browsers;
  - mail readers.

Some Applications

- Interface agents;
- Internet agents;
- E-commerce agents:

Pioneering work at MIT Media Lab (Pattie Maes): interface agents:

- news reader;
- web browsers;
- mail readers.
Nicholas Negroponte’s Vision

‘The agent answers the phone, recognizes the caller, disturbs you when appropriate, and may even tell a white lie on your behalf. The same agent is well versed in finding opportune moments, and respected for the calm, measured way in which he or she handles conflicts. The agent answers the phone, recognizes the caller, disturbs you when appropriate, and may even tell a white lie on your behalf.’

User

Rules can be ‘hard coded’, even get help from other agents, makes suggestions. ‘Tell me’ > confidence > ‘do it’

Each time a new event occurs (e.g., email arrives), MAXIMS records the situation — action pairs. Situation characterized by features of event: sender of email; recipient; subject line; etc.

When new situation occurs, MAXIMS matches it against previously recorded rules. Situation characterized by features of event: sender of email; recipient; subject line; etc.

MAXIMS learns to prioritize, delete, forward, sort, and archive mail messages on behalf of a user. MNAXIMS (Pattie Maes, 1994) learns to prioritize, send mail, delete, forward, sort, and archive mail messages on behalf of a user.

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So we write an agent to do these tasks.

- AMAXIMS has a simple 'personality' (a face icon), communicating its 'mental state' to the user.

- We cannot afford human agents to do these kinds of tasks (and in any case, humans get stiffer from the stress of it all).

- In and bringing to our attention information that is of interest.

- Proxying hidden information that we are not interested in (when asked as to what we were interested in, and the information the things we were interested in, and the information we prefer).

What we want is a kind of 'secretary': someone who

leads to information overload.

The sheer amount of information presented to us.
Tour guides

- The idea here is to have agents that help to answer the question 'where do I go next' when browsing the WWW.
- Such agents can learn about the user's preferences through interactions. They can also provide a personalized service, such as suggesting relevant documents or resources.

Indexing agents

- The idea is to use the raw information provided by search engines such as Google and Lycos, and search/indexing agents such as Google and Lycos. Such agents provide an extra layer of abstraction on top of the services provided by current WWW search tools.
- The idea here is to direct users to FAQ documents in order to answer specific questions.

FAQ finders

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Expertise finders

- The idea here is to provide a personalized service, such as Google and Lycos. Such agents learn about the user's preferences, experiences, and knowledge of the users. The expertise finders try to understand the user's wants.

http://www.csc.liv.ac.uk/~mjw/pubs/imas/
Another important rationale for Internet agents is the potential for electronic commerce. Most commerce is currently done manually, but there is no reason to suppose that certain forms of commerce could not be safely delegated to agents.

First & Second Generation E-Commerce Systems

- First generation: comparison shopping agents

Examples:
- 2003: Froogle from Google
- 1997: Jango from NETBOT
- 1995: Bargain Finder from Andersen

- Second generation: negotiation, brokering, etc.

Examples:
- 6. Watching for special offers & discounts.
- 2. Finding specs and reviews of products.
- 1. Help user decide what to buy.

Jango (Doorenbos et al. Agents 97) is a good example.

Jango

http://www.csc.liv.ac.uk/~mjw/pubs/imas/
Two key components of Jango/Shopbot:

- Learning vendor descriptions
- Comparison shopping