

U1760 Term Project

- 11/07: System design
- 11/21: Agent design
- 12/02: Mid-term report**
- 12/05: Presentation**

Task: Technical Reference

Given: an incomplete bibliographical specification

- ; Title
- ; Author
- ; Year/month
- ; Journal (or book title)
- ; Volume/number
- ; Publisher
- ; Keywords

Goal: retrieve the target reference

Ideas from the class: Agents

- Document Processing
 - ; clustering & classification
 - ; Scoring (author, SCI, institution etc.)
 - ; Abstract extraction, document summarization
- Agent-assisted search using
 - ; Taxonomy of domain and reference type
 - ; Citation/reference relations between papers
 - ; Author's reputation, institution, other publications
 - ; collaborative filtering (how to collect examples?)
 - ; Thesaurus or synonyms
- Agent-assisted user requirement specification
- XML program as search input
- Automatically requesting papers from authors

Ideas from the class: multi-agents

- Interface agent
- Reference agents
 - ; BibTeX agent
 - ; Bibliography extract agent
 - ; Keyword agent
- Information source agents
 - ; (Digital) Library agent
 - ; Publisher agent
 - ; Bookstore agent
 - ; Homepage agent
- Results agent
- Retrieval agents

Task Decomposition

- Discovery of paper source/abstract
 - ; Find the URL
 - ; Verify the source with BibTeX data
 - ; Transfer the file to local site
- Construction of technical paper library
 - ; Digital library
 - ; Collect/organize useful data
- Personalized information retrieval
 - ; Category-based IR
 - ; Personalized retrieval

Agent-Oriented Design

- A collection of task-specific agents
- Multi-agent architecture
- Agent communication
 - ; KQML
 - ; Eureka (KQML/ContractNet Protocols)

Useful Components

- Query interface to search engines
- Result extraction tool
- File format conversion tools
- Term vector generation
- Phrase extraction
- Document classification/ranking
- Feature selection
- Personal or group proxy

Desired Characteristics

Agent Issues:

- Useful knowledge sources
- Personalized retrieval
- Collaboration of multiple agents
- A carnivore in the information food chain
- Other: Autonomous, Adaptive

System Issues:

- Extensible functionality
- Web-enabled interface
- Distributed execution (client/proxy/server)

System Design Requirement

- Form project teams of four students each
- Define all the agents in the community
- Define a multi-agent architecture
 - Centralized control
 - Automatic planning
 - User-programmed
 - Distributed
 - Agent broker w/ event-driven
 - Behavior-based
 - Negotiation
 - Auction-based

Agent Design Requirement

- Perceptions
- Actions
- Architecture
 - Reactive
 - Deliberative
 - ??
- Functions performed by the agent
- A sample scenario of the agent in action
- Submit a one-page write-up by 11/21.

Report Requirements

- Overall system design
 - Which agents are the participants?
 - How do they work together?
- Individual agent design
 - Agent architecture
 - Detailed function specification
 - Interface with other agents
- Technical issues and proposed solutions
- References