Intelligent Environments

Intelligent User Interfaces

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Readings

- Hanssens et al, Building Agent-Based Intelligent Workspaces, ABA'02
- Youngblood et al, A Learning Architecture for Automating the Intelligent Environment, IAAI'05

Basic Concepts

- Intelligence “disappears” into environment
- Fits into general category of
  - “ubiquitous” computing
  - “pervasive” computing

  ... but with an AI component
- Breaking out of traditional UI box
- Using *context* to improve interaction
  - task-based
  - task recognition

Technologies

- Sensors
  - cameras, microphones, touch screens, etc.
- Actuators
  - electronics, displays, sound, lighting, heating, etc.
  - note home automation standards
    - X10, ZWave, ZigBee, UPnP, HomePlug, ...
- Highly multi-modal orientation

Types of Systems

- Interaction mode
  - Single user with environment
  - Between users in single environment (space)
  - Between environments (spaces)
- Type of space
  - home
  - business / work
  - public spaces
    - museums
    - entertainment (e.g., theme parks)
    - indoor/outdoor

Readings

- Hanssens et al, Building Agent-Based Intelligent Workspaces, ABA'02
  - work / business context
  - highly architecture-oriented paper
- Youngblood et al, A Learning Architecture for Automating the Intelligent Environment, IAAI'05
  - home context
  - emphasis on automatically recognizing patterns of activity