CS 295-1. Sensor Data Management
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Project Directions
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“Paper feed” application
- Improve the technical paper dissemination application
  - integrate other sources
    - other digital libraries
    - research group web pages
  - automate profiles, e.g.,
    - use the .bibtex file of the user
    - collaborative filtering
  - ...and help deploy the system

“Virtual town” feed
- Develop a comprehensive virtual feed for CS/Brown/Providence events
  - e.g., talks, meetings, shows, etc.
- Allow category, keyword-match subscriptions to events

Ego Feeds
- a.k.a. “reputation tracking”
- Track all mentions of, e.g.,
  - your name
  - your department’s name
  - your company’s name, etc.
- Tap into a bunch of sources, and/or
  - build on other similar services
  - e.g., pubsub.com, blogpulse.com
Network monitoring

- Monitor the use of departmental resources
  - track CPU utilization
  - identify runaway processes
  - monitor “suspicious” activity (e.g., denial-of-service attacks)

Feed query processing

- Write sophisticated structured queries “across” web feeds
  - “track top-k online retailers that offer the cheapest value for iPod nano”
  - “select all pairs of feeds that post >90% common feed items”
  - “buzz tracking: what is hot/not; how popularity is changing over time”

Collaborative spam/phish filter network

- A simple, p2p spam/phish report network
- A person/tool marks message as spam/phish
- The system filters out similar messages, blocks phishing sites

Implementing sensing/actuation oriented web services

- Implement various services for CIT/Brown
  - location of an entity
  - temperature at a given room (e.g., for the machine room)
  - sound level at a given room
  - audio/videos at a conference room
- Compose these services to implement a cool application
Indoors object tracking

- Friend tracker
  - track your friends throughout CIT
  - if they wish to disclose their location
  - map their location
- Use as many sensors as available
  - the more information available, the better localization will be
  - use cameras, bluetooth, motes, etc.
- Or do this for items
  - to prevent unauthorized use, theft

Outdoors object tracking

- Track events/objects with multiple cameras
- Place a bunch of webcams pointing out the CIT
  - track people; record and display trajectories on a real image
  - mark available parking spots; make information available as a web service

Robot Stuff

- A simple sense and respond application
  - Intelligent “Roomba”: mark trash in a room
  - Detect an intruder and bark!
- Two robots can collaborate for the task