Studying users through logging

- Computers are very good at making records and keeping track of data
  - Use this to your advantage
  - Many existing tools to help you log low-level data

- Many such logs are even available online for you to use
  - Circumvents IRB requirements

- Biggest challenge is focusing data collection to answer your research question
  - How to only collect relevant information
  - How to instrument applications to best collect information
  - How to process and analyze huge amounts of data
Examples: Web logs

Example: Keylogger
Common problems

- Drowning in data
  - Data collected at too low level, or in too much detail can be difficult to interpret
  - Data visualization can help
Common problems

• Drowning in data
  – Data collected at too low level, or in too much detail can be difficult to interpret
  – Typically not interested in events at the key-stroke level
    • This is where most of our tools like to operate at
  – Data visualization can help
  – Data parsers very important tools

• Sometimes anonymity is threatened
  – How far can you, or should you go in parsing log files?
  – How do you make people accept logging their activities?
  – How can you protect subjects from unwarranted loss of privacy?

• Causality
  – Does (A) cause (B), or (B) cause (A)?
  – Can we tell the difference?

• Extracting a narrative from a bunch of log data
  – What was the user trying to accomplish?
  – Why?
  – Did they succeed or fail?
Useful techniques

- Regression analysis
  - Try to determine the impact of different factors on a independent variable

- Heatmaps
Useful techniques

- Heatmaps
  - IOGraph

Participatory design
Participatory Design/Pluralistic Walkthrough

- Involve up to 15 people (large focus group)
  - Users (1-10)
  - Developers (6-10 - Silent)
  - Usability people (2-3)
- Printed prototypes and scenarios
- Given scenario, independently write sequence of actions they would take
- Users discuss actions and potential problems, developers listen
- Usability people summarize & present “right” solution
- Brief questionnaire

Potential Problems

- As slow as the slowest person
- Can require a lot of people, can be difficult to schedule
- Doing a lot of scenarios can take a lot of time
- Having developers present important, but can be problematic