Grad Course Pitch: Information Visualization

CPSC 547, Fall 2015

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What's Infovis?

- information visualization:
  - Computer-based interactive visual representations of abstract datasets intended to help people carry out some task more effectively.
- draws on / plays well with:
  - HCI, cognitive psychology, graphics,
  - algorithms, data structures,
  - stats, machine learning, graph theory

Why Should You Care?

- you've got data you need to understand
  - or you will some day

What Kind of Data? Past Projects

- software engineering
  - source code history, program structure navigation, jquery, devel env
- computer networking
  - intrusion detection, VoIP, P2P networks, NTP servers
- other CS
  - mocap dbs, execution traces, game stats, document revisions, XML metadata, filesystems, semantic networks
- genomics/bioinf/medical
  - flow cytometry, gene sequences, transcription factors, epidemiology, heart disease, pandemics

What Kind of Data? Past Projects

- other domains
  - fisheries sim, construction change orders, weather for pilots, stock market, cloud modelling, survey data
- interesting datasets
  - organic food production, MP3 collections, law enforcement resource allocation, lemur survival, ancient Chinese literature
- infovis techniques/algs, not data per se
  - time series, parallel coordinates, small-world graphs, dimensionality reduction, treemaps,

What Will You Do?

- reading
  - 2 readings/lecture
  - 1 book chapter, 1 research paper
- presenting
  - project pitch
  - chosen paper presentation
  - final project presentation
- writing
  - reading questions, proposal, update, final report
- programming
  - project course (unless do analysis/survey option)
- no problem sets or exams

What's When?

- lectures/readings: front-loaded
  - weeks 1-9 (no classes week 8)
  - core readings required
  - submit questions on readings before lectures (18%)
  - lecture / discussion / in-class design exercises (9%)
- presentations (25%)
  - weeks 10-13
  - student presentations on topic of your choice, only presenter does reading
  - discussion (3%)
- project (50%)
  - weeks 6-14
  - programming, analysis, or survey
  - can be tied to other courses or thesis work
  - solo or team

What Do You Need To Know?

- no prereqs required
  - HCI very useful
  - computer graphics useful
    - no graphics background could constrain your project choices
- grads from other departments welcome

What Feedback Will I Give You?

- twofold goal
  - specific: teach you some infovis
  - generic: teach you how to be a better researcher
- detailed written comments on writing and presenting
  - both content and style
  - at level of paper review for your final project

More Info

http://www.cs.ubc.ca/~tmm/courses/infovis

- standin page for now, see link to last year's
  - interesting times: 40+9 signed up
  - some structure TBD until I have final headcount
  - likely to have room for all who want it