Information Visualization

Intro

Tamara Munzner
Department of Computer Science
University of British Columbia

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Audience

• no prerequisites
  – many areas helpful but not required
    • human-computer interaction, computer graphics, cognitive psychology, graphic design,
      algorithms, machine learning, statistics, ...

• open to non-CS people
  – if no programming background, can do analysis or survey project

• open to advanced undergrads
  – talk to me

• open to informal auditors
  – some or all days of readings/discussion, as you like
    • you’ll get out of it what you put into it...
Class time

• weeks 1-9: Participation [30%]
  – before class:
    • you read chapter, sometimes also paper
    • you submit comments before class
  – during class:
    • sometimes I lecture briefly and we discuss
    • sometimes in-class group work
    • Jan 24 is TBD (possibility that class cancelled)

• weeks 10-13: Presentations [20%]
  – before one of the classes: you each read paper on topic of your choice
  – during that class: you present it to everybody else (~10 min)
Readings

• textbook
    • http://www.cs.ubc.ca/~tmm/vadbook/
  – library has multiple ebook copies
  – to buy yourself, cheapest is amazon.com

• papers
  – links posted on course page
  – if DL links, use library EZproxy from off campus

• readings posted by one week before class

• each session: always one chapter, sometimes one more paper
Participation [30%]

• written comments on reading in advance (18% of total mark)
  – due 1:30pm (2 hrs before class)
  – 1 for each reading
  – bring printout or laptop with you, springboard for discussion

• discussion/participation in class (12% of total mark)

• attendance expected
  – tell me in advance if you’ll miss class (and why)
  – question credit still possible if submitted in advance
  – tell when you recover if you were ill
Reading comments

• comments or questions

• fine to be less formal than written report
  – correct grammar and spelling still expected
  – be concise: a few sentences is good, one paragraph max!

• should be thoughtful, show you’ve read and reflected
  – poor to ask something trivial to look up
  – ok to ask for clarification of genuinely confusing section
  – good to show that you’re thinking carefully about what you read
  – great to point out something that I haven’t seen before

• examples on http://www.cs.ubc.ca/~tmm/courses/infovis/structure.html
Projects [50%]

• solo, or group of 2, or group of 3
  – groups highly encouraged; amount of work commensurate with group size

• stages
  – pitches (oral, in class): Thu, Feb 16
  – meetings (individual, outside class): through Fri, Mar 3, 5pm
  – proposals (written): Mon, Mar 6, 5pm
  – peer project reviews (in class): Mar 21, Apr 4
  – interim writeup including related work (written): Mar 31, 5pm
  – final presentations (oral): Apr 25 1-5pm
  – final reports (written): Apr 28, 5pm

• resources
  – more on datasets and tools later
Projects

• programming
  – common case
  – note that I will only consider supervising students who do programming projects
  – three types
    • problem-driven design studies (target specific task/data)
    • technique-driven (explore design choice space for encoding or interaction idiom)
    • algorithm implementation (as described in previous paper)

• analysis
  – use existing tools on dataset
  – detailed domain survey
  – particularly suitable for non-CS students

• survey
  – very detailed domain survey
  – particularly suitable for non-CS students
Projects: Design studies

• BYOD (Bring Your Own Data)
  – you have your own data to analyze
  – your thesis/research topic (very common case)
  – dovetail with another course (sometime possible but timing can be difficult)

• FDOI (Find Data Of Interest)
  – many existing datasets, see resource page to get started
    • http://www.cs.ubc.ca/group/infovis/resources.shtml
Presentations [20%]

• last several weeks of class
• present, analyze, and critique one paper
  – send me topic choices by Feb 17, I will assign papers accordingly
• expectations
  – slides required
  – summary/description important, but also your own thoughts
    • analysis according to book framework
    • critique of strengths and weaknesses
• timing
  – exact times TBD depending on enrollment
  – likely around 10 minutes each
• topics at [http://www.cs.ubc.ca/~tmm/courses/infovis/presentations.html](http://www.cs.ubc.ca/~tmm/courses/infovis/presentations.html)
Marking

• 50% Project
  – 2% Pitches
  – 10% Proposal
  – 4% Interim Writeups
  – 4% Project Peer Reviews
  – 12% Final Presentation
  – 18% Final Report
  – 50% Content

• 20% Presentations
  – 75% Content: Summary 50%, Analysis 25%, Critique 25%
  – 25% Delivery: Presentation Style 50%, Slide Quality 50%

• 30% Participation
  – 60% Written Questions
  – 40% In-Class Discussion/Exercises

• marking by buckets
  – great 100%
  – good 89%
  – ok 78%
  – poor 67%
  – zero 0%
Course goals

• twofold goal
  – specific: teach you some infovis
  – generic: teach you how to be a better researcher

• feedback through detailed written comments on writing and presenting
  – both content and style
  – at level of paper review for your final project
  – goal: within a week or so

• fast marking for reading questions
  – great/good/ok/poor/zero
  – goal: turn around before next class
    • one week at most
Finding me

• email is the best way to reach me: tmm@cs.ubc.ca
• office hours Tue right after class (5-6pm)  
  –or by appointment
• X661 (X-Wing of ICICS/CS bldg)

• course page is font of all information  
  –don’t forget to refresh, frequent updates  
  –http://www.cs.ubc.ca/~tmm/courses/547-17
Now: In-class design exercise, in small groups

- Five time-series scenarios
  - A: every 5 min, duration 1 year, 1 thing: building occupancy rates
  - B: every 5 min, 1 year, 2 things: currency values (exchange rate)
  - C: several years and several things: 5 years, 10 currencies
  - D: 1 year, many things: CPU load across 1000 machines
  - E: 1 year, several parameters, many things: 10 params on each of 1000 machines

- Small-group exercise: 15-20 min
  - one group per table (4-5 people/group)
  - discuss/sketch possible visual encodings appropriate for your assigned scenario

- Reportback: 20-30 min
  - 3 min from each group

- Design space examples/discussion: 15-20 min
Next Time

• to read
  – VAD book, Ch 1: What's Vis, and Why Do It?
  – VAD book, Ch 2: What: Data Abstraction