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University of British Columbia
CPSC 547, Information Visualization
Week 8: 29 Oct 2019

**Scientific Presentation Planning**

- Must include both text and images
- Must include paper page URL in slides if it exists
- Do include both text and images
- New images you might make new diagrams
- You might grab other images, especially for background or if comparing to prev work

**How to Present a Paper**

- Project voice so we can hear you
- Avoid constant distracting jiggle
- Avoid muttered comments to self, volume drop-off at end of slide
- Aim for 18 min presenting and 2 min discussion
- For flow of words and for timing
- Break after you’ve explained some of background
- After you’ve walked us through most of interface, to show interaction in specific
- Avoid judgment call: how much detail to have in presenter notes
- Explain core technical content to audience
- Analyze with doing what/why/how framework
- Judgement call on text/image ratio, avoid extremes
- 24 point as absolute minimum
- Simple enough to be useable at full/partial skull
- Judgement call about layout/white space
- Avoid micro text with macro whitespace

**How to Give an Academic Talk**

- Paul N. Edwards
- Leslie Lamport
- Jim Blinn
- Paul N. Edwards
- Leslie Lamport
- Jason Harrison

**Biomechanical Motion**

- Daniel F. Keefe, Marcus Ewert, William Ribarsky, Remco Chang

**Interactive Coordinated Multiple-View Visualization of Biomechanical Motion Data**

- Daniel F. Keefe, Marcus Ewert, William Ribarsky, Remco Chang

- Derived data: traces/streamers
  - Derived data: 3D motion traces from interactively chosen spots
  - generates x/y/z data over time
  - streamers shown in 3D views directly
  - populates 2D plots

**Multiple linked spatial & non-spatial views**

- Data: 3D spatial, multiple attris (cyclic)
- Encode: 3D spatial, parallel coords, 2D line (xy) plots
- Face: few large multi-views, many small multuples (~100)
  - Encode: color by row for window background
  - View coordination: line in parameter its frame in small multi

- Technical advice
  - How to Give an Academic Talk
  - Paul N. Edwards
  - How to Give a Great Research Talk
  - James P. Peyton Jones, John Hughes, and John Labunsky
  - How to Present a Paper
  - Leslie Lamport
  - Things I Hope Not To See or Hear at SIGGRAPH
  - Just laser pointer judiciously
  - Avoid constant distracting jiggle
  - Practice, practice, practice
  - For flow of words and for timing
  - Question handling: difficult to practice beforehand
  - Face audience, not screen
  - Pro tip: your screen left/right matches audience left/right in this configuration
  - Avoid reading exactly what the slide says
  - Judgment call how much detail to have in presenter notes
  - Avoid monotonous commas so well, some drop off at end of slide
  - Avoid monotonous, variable emphasis helps us get engaged
  - Simple enough to be useable at full/partial skull
  - Avoid micro text with macro whitespace

**Typo fisheye views paper, chapters: reduce, embed, case studies**

**New**

- Guest lectures: Bettina Speckmann, Cartography & Flow; Yang Wang, Architectures for Scale.
- Example Present: Biomechanical Motion; Proposals Expectations
- Tamara Munzner
  - Department of Computer Science
  - University of British Columbia

**Slides**

- Do include both text and images
- Text:
  - Font must be readable from back of room
  - 24 point as absolute minimum
  - Use different type sizes to help guide eye, with larger title font
  - Avoid micro text with macro whitespace
  - Bullet style not sentences
  - Sub-bullets for secondary points
  - Compress what it feels like to read an entire long sentence on a slide while complete structure is a good thing to have for flow in writing; it’s more difficult to parse in the context of a slide where the speaker is speaking over it.
  - Legibility
  - Remember luminance contrast requirements with colors!

**Style**

- Face audience, not screen
  - Pro tip: your screen left/right matches audience left/right in this configuration
  - Project voice so we can hear you
  - Avoid constant distracting jiggle
  - Project voice so we can hear you
  - Avoid constant distracting jiggle
  - Practice, practice, practice
  - For flow of words and for timing
  - Question handling: difficult to practice beforehand
  - Face audience, not screen
  - Pro tip: your screen left/right matches audience left/right in this configuration
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**Beyond paper itself**

- Check for author paper page
  - Required for design studies and technique papers
  - Some possible for algorithm papers
  - But more emphasis on presenting algorithm clearly
  - More emphasis on presenting algorithm clearly
  - Minimal for evaluation papers
  - But can discuss study design and statistical analysis methods

**Analysis & critique**

- Paper type dependent
  - Required for design studies and technique papers
  - Some possible for algorithm papers
  - But can discuss study design and statistical analysis methods

**Text**

- Example Present: Biomechanical Motion
  - Beyond paper itself
  - Small multiples for overview
  - Derived data: traces/streamers
  - Style
  - Sub-bullets for secondary points
  - Technical advice
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**Small multiples for overview**

- Facet: small multiples for overview
  - Aggressive/ambitious, 100+ views
  - Encode: color by row for window background
  - View coordination: line in parameter its frame in small multi
  - Data: 3D spatial, multiple attris (cyclic)
  - Encode: 3D spatial, parallel coords, 2D line (xy) plots
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**News**

- Presentation days assigned
  - Both times and papers: still need topics from two of you!
  - Today:
    - Guest lecture: Bettina Speckmann
    - Neurovis and Flow Algorithms for Automated Cartography
    - Guest lecture: Yang Wang
    - Architectures for Scale
    - Break
    - Example presentation
    - Proposals expectations
  - Next time:
    - Topo fisheye views paper, chapters: reduce, embed, case studies

**Slides images**

- Figures from paper
  - Good idea to use figures from paper, especially screenshots
  - Judgement call about content/size/all
  - New images
  - You might make new diagrams
  - You might grab other images, especially for background or if comparing to prior work
  - Avoid random clip art
  - Images alone often hard to follow
  - Images do not speak for themselves, you must walk us through them
  - Test bullets to walk us through your highest level points
  - Hard to follow if only made routinely
  - Judgement call on slide/taking ratio, avoid extremes

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**Biomechanical motion design study**

- Large DB of 3D motion data
  - Pig chewing high-speed motion at joint, 500 FPS w/ sub-mm accuracy
  - Domain tasks
    - 3D: Taskology relationship between 3D shape of bones and their function
    - What is a typical chewing motion?
    - How does chewing change over time based on amount/type of food in mouth?
    - Abstract tasks
      - Trends & anomalies across collection of time-varying spatial data
      - Understanding complex spatial relationships
    - Guest lecture: Yang Wang
    - Include paper page URL in slides if it exists
    - May have demo or supplemental material
    - Avoid judgment call: how much detail to have in presenter notes
    - Explain core technical content to audience
    - Analyze with doing what/why/how framework
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**Technical advice**

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**Mental models of systems**

- Large DB of 3D motion data
  - Pig chewing high-speed motion at joint, 500 FPS w/ sub-mm accuracy
  - Domain tasks
    - 3D: Taskology relationship between 3D shape of bones and their function
      - What is a typical chewing motion?
      - How does chewing change over time based on amount/type of food in mouth?
    - Abstract tasks
      - Trends & anomalies across collection of time-varying spatial data
      - Understanding complex spatial relationships
    - Guest lecture: Yang Wang
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**Small multiples for overview**

- Facet: small multiples for overview
  - Aggressive/ambitious, 100+ views
  - Encode: color code window by briar
  - Filter:
    - Full-partial skull
    - Streamers
      - Simple enough to be useable at low-information density
Critique

• many strengths
  – carefully designed with well justified design choices
  – explicitly followed mantra
  – aggressive about multiple views, arguably pushing limits of understandability
  – encode coloured by vertical distance separating teeth (derived surface interactions)
  – also 3D instantaneous helical axis showing motion of mandible relative to skull

• weaknesses/limitations
  – (older paper feels less novel, but must consider context of what was new)
  – scale analysis: collection size of <=100, not thousands (understandably)
  – aggressive about multiple views, arguably pushing limits of understandability

Proposals Expectations

Proposals

• projects: written proposals due Mon Nov 4 10pm
  – (no readings or comments due Tue Nov 5)
• heading
  – project title (real title, not just “CPSC 547 proposal” – can change later)
  – name & email of every person on team (do not include student numbers)
• intro: brief description of what you’re proposing to do, at high level
  – include personal expertise in this area (for each group member)
• for design studies: domain, data, task
  – definitely in domain terms
  – get started on abstraction (even if preliminary)
• for technique projects: explain proposed context of use

Proposals II

• proposed infovis solution (what you know so far)
  – do include illustration of what interface might look like, could be hand drawn sketch or mockup made with drawing program
  – do include scenario of use (how user would use solution to address task)
• implementation plan (high-level platform, language, libraries)
  – clarify your scope/goal building on work of others to enable more ambitious project, not rolling your own to learn tools, amount of work depends on your existing expertise
  – milestones
  – break into meaningful smaller pieces, specific to your project, in addition to generic
  – for each estimate target date of completion and hours of work
  – be explicit about who will do what: breakdown between group members
  – time scope: 70 hrs per person across whole project
  – very typical to structure as possibilities: after A&B, decide on C and do 2 of D-G

Proposals III

• http://www.cs.ubc.ca/~mnn/courses/547-17F/projectdesc.html#proposals
  – also, consult final report structure to have future goal in mind
• http://www.cs.ubc.ca/~mnn/courses/547-17F/projectdesc.html#final

Projects overall schedule

• Pitches: Tue Oct 8 in class
• Groups finalized: Fri Oct 19 5pm
• Meetings cutoff: Fri Nov 1 at 6pm
• Proposals due: Mon Nov 4 at 10pm
  – (no readings due Tue Nov 5)
• Peer Project Reviews 1: Tue Nov 19 in class
• Peer Project Reviews 2: Tue Dec 4 in class
• Final presentations: Tue Dec 10 1-5pm
• Final papers due: Fri Dec 13 at 11:59pm

Meetings

• each group needs signoff: at least one meeting
  – in some cases followup meeting needed; in some cases you’re already set
  – meetings cutoff is 6pm Fri Nov 1

Projects

• Derived data: surface interactions
  – derived data
  – 3D surface interaction patterns
  – facet
  – superimposed layers in 3D view
  – encoding
  – color coding

• Side by side views demonstrating tooth slide
  – facet: linked navigation vs some 3D viewpoints for all
  – encode coloured by vertical distance separating teeth (derived surface interactions)
  – also 3D instantaneous helical axis showing motion of mandible relative to skull

Cluster detection

• identify clusters of motion cycles
  – from combo: 3D xy plots & parcoords
  – show motion itself in 3D view
  – facet: superimposed layers
  – foreground/background layers in parcoords view itself

Analysis summary

• what: data
  – 3D spatial, multiple stimuli (cycle)
• what: derived
  – 3D motion traces
  – 3D surface interaction patterns
  – how: encode
  – 3D spatial, parallel coords, 3D plots
  – color views by trial, surfaces by interaction patterns
  – how: reduce – 3D navigation

• how: change
• how: facet
  – few large multiform views
  – many small multiples (~100)
  – linked highlighting
  – linked navigation
  – layering

• how: reduce – filtering

Proposals II

• proposed infovis solution (what you know so far)
  – do include illustration of what interface might look like, could be hand drawn sketch or mockup made with drawing program
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  – time scope: 70 hrs per person across whole project
  – very typical to structure as possibilities: after A&B, decide on C and do 2 of D-G

Next time

• deadlines
  – meetings due by Fri Nov 1, 6pm
  – several of the projects are not yet signed off, slots filling up fast
  – proposals due by Mon Nov 4, 10pm
• next week
  – presentations
  – finishing discussions from today’s reading

Projects

• Proposals

• Critique

• Analysis summary

• Projects overall schedule

• Proposals II

• Proposals III

• Meetings

• Proposals

• Proposals II

• Proposals III

• Meetings

• Proposals

• Proposals II

• Proposals III

• Meetings

• Proposals

• Proposals II

• Proposals III

• Meetings