

# Lecture 15: Writing Papers

Information Visualization  
CPSC 533C, Fall 2006

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28 November 2006

# Overview

- ▶ What Not To Do (General Research)
- ▶ What To Do (General Research)
- ▶ What To Do (For This Class)

# Paper Pitfalls: Strategy

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  - ▶ two papers split up wrong
  - ▶ neither is standalone, yet both repeat
- ▶ Slimy Simultaneous Submission
  - ▶ often detected when same reviewer for both
  - ▶ instant dual rejection, multi-conference blacklist



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- ▶ Deadly Detail Dump
  - ▶ how allowed only **after** what and why
  - ▶ motivation: why should I care
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- ▶ Jargon Attack
  - ▶ avoid where you can
  - ▶ define before using

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  - ▶ showcase early to motivate
- ▶ A Thousand Words, No Pictures
  - ▶ aggressively replace words with illustrations
  - ▶ most slides should have a picture
- ▶ Full Coverage Or Bust
  - ▶ cannot fit all details from paper
  - ▶ talk as advertising, communicate big picture

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- ▶ It's The Writing Not The Work
  - ▶ sometimes true: bad writing can doom good work
    - ▶ converse: good writing may save borderline work
  - ▶ sometimes false: weak work all too common
    - ▶ many people reinvent wheel
    - ▶ some people make worse wheels than previous ones



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- ▶ medium level: order of explanations
  - ▶ build up ideas
- ▶ high through low level:  
**why/what before how**
  - ▶ paper level
  - ▶ section level
  - ▶ sometimes even subsection or paragraph

# Paper Writing: InfoVis Technique/Design Study

- ▶ what problem are you solving
- ▶ why should I care
  - ▶ order depends on whether familiar
- ▶ why don't existing systems solve problem
- ▶ technique
  - ▶ **how algorithm works: overview, then details**
- ▶ design study
  - ▶ **what is mapping from domain problem to visual encoding**
  - ▶ **why does it solve problem**
    - ▶ **abstraction and justification is critical**
  - ▶ **may include multiple design iterations**
- ▶ results
  - ▶ complexity, performance, visual quality, efficacy
  - ▶ usage scenarios, case studies

# InfoVis Paper Styles

- ▶ technique
  - ▶ most common
  - ▶ here's how to do X
  - ▶ do first, or do better
- ▶ design study
  - ▶ not just apply technique X to domain Y
  - ▶ justify visual encoding choices
- ▶ system
  - ▶ very hard to do well!
  - ▶ lessons learned: why do we care?
- ▶ evaluation
  - ▶ often but not always user studies
- ▶ model
  - ▶ frameworks, taxonomies
  - ▶ best case: taxonomy as aid to thinking, finding gaps
- ▶ actual paper may (should?!) have a mix of these elements
- ▶ more at [www.infovis.org/infovis/2003/CFP/#papers](http://www.infovis.org/infovis/2003/CFP/#papers)

# Paper Writing: Contributions

- ▶ what are your research contributions?
  - ▶ what can we do that wasn't possible before?
  - ▶ how can we do something better than before?
  - ▶ what do we know that was unknown or unclear before?
- ▶ determines everything
  - ▶ from high-level message to which details
- ▶ often not obvious
  - ▶ diverged from original goals, in retrospect
- ▶ state them explicitly and clearly in introduction
  - ▶ don't hope that reviewer or reader will fill in for you
  - ▶ don't leave unsaid what should be obvious after close reading of previous work
    - ▶ pw very important - but many readers skip
  - ▶ goal is clarity, not overselling
    - ▶ do include limitations: often later, in discussion subsection

# Two Nonstandard Suggestions



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- ▶ write and give talk first
- ▶ **then** create paper outline from talk
  - ▶ encourages concise explanations of critical ideas
  - ▶ avoids wordsmithing ratholes and digressions

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- ▶ write and give talk first
- ▶ **then** create paper outline from talk
  - ▶ encourages concise explanations of critical ideas
  - ▶ avoids wordsmithing ratholes and digressions
- ▶ practice talk feedback session: at least 3x talk length
  - ▶ global comments, then slide by slide detailed discussion
  - ▶ nurture culture of internal critique

# Overview

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# Project Writeups

- ▶ [www.cs.ubc.ca/~tmm/courses/533/projectdesc.html#final](http://www.cs.ubc.ca/~tmm/courses/533/projectdesc.html#final)
- ▶ do read closely!
  
- ▶ due the day after presentations (Fri 12/15 2pm)
- ▶ submit PDF
  - ▶ templates provided (LaTeX, Word)

# Course Requirements vs. Standard Paper: 1

- ▶ research novelty **not** required
  - ▶ some past projects implement published technique
  - ▶ some past projects explicitly not aiming for academic publishability
  - ▶ many past projects propose solution using existing techniques
  - ▶ some past projects have become posters at InfoVis
  - ▶ some past projects could have been submitted as papers with further work

## Course Requirements vs. Standard Paper: 2

- ▶ explicit explanation of what was coded **is** required for programming projects
  - ▶ submission of code itself not required
  - ▶ (but you're encouraged to make it available open-source!)
- ▶ part of my judgement is about how much work you did
  - ▶ high level: what toolkits etc did you use
  - ▶ medium level: what pre-existing features in them did you use
  - ▶ medium level: how did you adapt/extend existing features to solve your specific problems
- ▶ design justification **is** required for programming projects
  - ▶ technique alone is not enough
- ▶ evaluation encouraged but not required
  - ▶ tradeoff: hard to do both evaluation and technique

# Final Presentations

- ▶ 20 minutes each
  - ▶ some context setting
  - ▶ focus on results
  
- ▶ demos encouraged
  - ▶ do include screenshots in slides as backup
  - ▶ practice in advance since hard to do quickly
  - ▶ if you're using my laptop, must checkout in advance