

Research Papers and Process

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<http://www.cs.ubc.ca/~tmm/courses/547-25>

Idiom pitfalls

- Unjustified Visual Encoding
 - should justify why visual encoding design choices appropriate for problem
 - prerequisite: clear statement of problem and encoding!
- Hammer In Search of Nail
 - should characterize capabilities of new technique if proposed in paper
- Color Cacophony
 - avoid blatant disregard for basic color perception issues
 - huge areas of highly saturated color
 - categorical color coding for 15+ category levels
 - red/green without luminance differences
 - encoding 3 separate attributes with RGB
- Rainbows Just Like In The Sky
 - avoid hue for ordered attribs, perceptual nonlinearity along rainbow gradient

Later pitfalls: Tactics

- Stealth Contributions
 - don't leave them implicit, it's your job to tell reader explicitly!
 - consider carefully, often different from original project goals
- I Am So Unique
 - don't ignore previous work
 - both on similar problems and with similar solutions
- Enumeration Without Justification
 - “X did Y” not enough
 - must say why previous work doesn't solve your problem
 - what limitations of their does your approach fix?
- I Am Utterly Perfect
 - no you're not; discussion of limitations makes paper stronger!

Final pitfalls: Submission

- Slimy Simultaneous Submission
 - often detected when same reviewer for both
 - instant dual rejection, often multi-conference blacklist
- Resubmit Unchanged
 - respond to previous reviews: often get reviewer overlap, irritated if ignored

Today

- papers & research: pitfalls & process
 - writing infovis research papers
 - review reading, review writing, conference talks
- course endgame expectations
 - final presentations
 - final report
 - incl. course paper vs research paper differences
- [evaluations]
- open science
 - making research available, reproducible, replicable

Later pitfalls: Strategy

- What I Did Over My Summer Vacation
 - don't focus on effort rather than contribution
 - don't be too low level, it's not a manual
- Least Publishable Unit
 - avoid tiny increment beyond (your own) previous work
 - bonus points: new name for old technique
- Dense As Plutonium
 - don't cram in so much content that can't explain why/what/how
 - fails reproducibility test
- Bad Slice and Dice
 - two papers split up wrong
 - neither is standalone, yet both repeat

Later pitfalls: Results

- Unfettered By Time
 - choose level of detail for performance numbers
 - detailed graphs for technique papers, high-level for design & eval papers
- Straw Man Comparison
 - compare appropriately against state-of-the-art algorithms
 - head-to-head hardware is best (re-run benchmarks yourself, all on same machine)
- Tiny Toy Datasets
 - compare against state-of-the-art dataset sizes for technique (small ok for eval)
- But My Friends Liked It
 - asking labmates not convincing if target audience is domain experts
- Unjustified Tasks
 - use ecologically valid user study tasks: convincing abstraction of real-world use

Generality

- encoding: visualization specific
- strategy: all research
- tactics: all research
- results: visualization specific
- style: all research, except
 - Story-Free Captions, My Picture Speaks For Itself

Writing InfoVis Papers

Later pitfalls: Tactics

- Stealth Contributions
 - don't leave them implicit, it's your job to tell reader explicitly!
 - consider carefully, often different from original project goals

Final pitfalls: Style

- Deadly Detail Dump
 - explain *how* only **after** *what* and *why*; provide high-level framing before low-level detail
- Story-Free Captions
 - optimize for flip-through-pictures skimming
- My Picture Speaks For Itself
 - explicitly walk them through images with discussion
- Grammar Is Optional
 - good low-level flow is necessary (but not sufficient), native speaker check good if ESL
- Mistakes Were Made
 - don't use passive voice, leaves ambiguity about actor
 - your research contribution or done by others?

Research Process & Pitfalls

Pitfalls

- writing infovis papers: pitfalls to avoid
 - Process and Pitfalls in Writing Information Visualization Research Papers. *Tamara Munzner. In: Information Visualization: Human-Centered Issues and Perspectives. Andreas Kerren, John T. Stasko, Jean-Daniel Fekete, Chris North, eds. Springer LNCS Volume 4950, p 134-153, 2008.*

Contributions in research papers

- 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 worth including
- often not obvious
 - diverged from original goals, in retrospect
- state them explicitly and clearly in the introduction
 - don't hope reviewer or reader will fill them in for you
 - don't leave unsaid should be obvious after close reading of previous work
 - goal is clarity, not overselling (limitations typically later, in discussion section)

Final pitfalls: Style 2

- Jargon Attack
 - avoid where you can, define on first use
 - all acronyms should be defined
- Nonspecific Use Of Large
 - quantify! hundreds? 10K? 100K? millions? billions?...

Review reading pitfalls

- Reviewers Were Idiots
 - rare: insufficient background to judge worth
 - if reviewer didn't get your point, many readers won't
 - your job: rewrite so clearly that nobody can misunderstand
- Reviewers Were Threatened By My Brilliance
 - seldom: unduly harsh since intimately familiar with area
- I Just Know Person X Wrote This Review
 - sometimes true, sometimes false
 - don't get fixated, try not to take it personally
- It's The Writing Not The Work
 - sometimes true: bad writing can doom good work (good writing may save borderline)
 - sometimes false: weak work common! reinvent the wheel worse than previous one

Review writing pitfalls

- Uncalibrated Dismay
 - remember you’ve only read the best of the best!
 - most new reviewers are overly harsh
- It’s Been Done, Full Stop
 - you must say who did it in which paper, full citation is best
- You Didn’t Cite Me
 - stop and think whether it’s appropriate
 - be calm, not petulant
- You Didn’t Channel Me
 - don’t compare against paper you would have written
 - review the paper they submitted

Conference talk pitfalls

- Results As Dessert
 - don’t save until the end as a reward for the stalwart!
 - 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
 - communicate big picture
 - talk as advertising: convince them it’s worth their time to read paper!

Paper writing process suggestions

- pre-paper talk: rapid prototyping for writing
 - write and give talk first, as if presenting at conference
 - iterate on talk slides to get structure, ordering, arguments right
 - then create paper outline from final draft of slides
 - encourages concise explanations of critical ideas, creation of key diagrams
 - avoids wordsmithing digressions and ratholes
 - easier to cut slides than prose you agonized over
- pre-paper/practice talk feedback session: at least 2-3x talk length
 - global comments, then slide by slide detailed discussion
 - nurture culture of internal critique (build your own critique group if necessary)
- have non-authors read paper before submitting
 - internal review can catch many problems
 - ideally group feedback session as above

Course Endgame

Logistics

- Assignments: Final Presentations on Canvas
 - upload due Thu Dec 11 noon (2.5 hrs before session)
 - required & posted: slides (Project Final Presentation Slides, PDF)
 - optional & posted: video (Project Final Presentation Video, mp4)
- Assignments: Final Report on Canvas
 - upload due Mon Dec 15 noon (PST)
 - required & posted: report (Project Final Report, PDF)
 - required & posted: showcase image (Project Teaser Image, png)
 - required but not posted: code incl README (Project Source Code and Other Materials, zip)
 - encouraged & posted: live demo URL (include in code README)
 - encouraged & posted: video (include in code zip *only* if different from final present video)

Final Presentations

Final presentations: Thu Dec 11 2:30-4 pm

- length (4 projects)
 - **presentation** (live **or** prerecorded): 17 min
 - **Q&A** live: 3-4 min
 - **Break**: 2 min between
- session structure
 - order alphabetical by first name (on project page)
 - CS dept (fac / grads) & infovis group invited, friends/others very welcome!
 - refreshments served

Final presentations, cont

- presentation structure
 - content: **motivation/framing, project, results, critique/limitation**
 - standalone: don’t assume audience has read proposal or updates (or remembers your pitch)
 - slides (**& slide numbers**) mandatory for main part
 - demo strongly encouraged, either live or prerecorded
 - format is up to you: live presentation or prerecorded video or a mix
- slides/video upload
 - upload to Canvas Assignments: Final Slides (mandatory), Final Video (optional)
 - by noon Thu Dec 11
- note: **code freeze after presentations!**
 - no additional work on project allowed after presentation deadline
 - additional few days to get it all written down coherently for final report

Final Presentations Schedule

- 2:30-2:50 Alice Kang, Minju Park.
Exploratory Visual Analysis of Multivariate Correlations in Global Demographic Data
- 2:52-2:54 break
- 2:54-3:14 Gale Chen, Ricky Curry.
Canadian Federal Election Data Visualizer
- 3:14-3:16 break
- 3:16-3:36 Haeji Jung, Yuri Kim.
Read Bible in Context with BibleViz
- 3:36-3:38 break
- 3:38-3:58 Kevin Wang, Raymond Liu.
Visualizing RAG Chatbots in Education

Final presentations marking

- | | |
|--|--|
| • template (may change) <ul style="list-style-type: none">– Intro/Framing: 20%– Main: 30%– Limitations/Critique/Lessons: 10%– Slides: 10%– Presentation/Video Style: 10%– Demo: 10% (or N/A)– Question Handling: 10% | • marking by buckets <ul style="list-style-type: none">– great 100%– good 89%– ok 78%– poor 67%– zero 0% |
|--|--|

Marking: Course overall

- | | |
|--|---|
| • 50% Project, summative assessment at end <ul style="list-style-type: none">– 15% Final Presentation– 25% Final Report– 60% Content– <i>(Milestones pass/fail, penalty only if missed or unacceptable)</i><ul style="list-style-type: none">• pitch 5%, proposal 10%, update 10% | • 37% Async Discussion <ul style="list-style-type: none">– 8 weeks, 4% per week (+ week 1, 1%)<ul style="list-style-type: none">• 75% own comments, 25% responses• <i>(most got full credit)</i> |
| | • 13% Sync: In-Class Participation <ul style="list-style-type: none">– 12 sessions, 1% per session– 1% final presentations– <i>(most got full credit)</i> |

Final Reports

Final reports

- PDF, use InfoVis templates <https://tc.computer.org/vgtc/publications/journal/>
 - your choice to use Latex/Word/whatever
- no length cap: illustrate freely with screenshots!
 - design study / technique: aim for at least 6-8 pages
 - analysis / survey: aim for at least 15-20 pages
- strongly encouraged to re-use text from proposal & update writeups
- encourage looking at my writing correctness and style guidelines
 - <https://www.cs.ubc.ca/~tmm/writing.html>
- strongly encourage looking at previous examples
 - <https://www.cs.ubc.ca/~tmm/courses/547-25/projectdesc.html#examp>
 - Example Past Projects (curated list)
 - direct links to all project pages to browse, 2022-2003

Course requirements vs research paper standards

- research novelty **not** required
- mid-level discussion of implementation **is** required
 - 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 did you use/adapt
 - low level **not** required: manual of how to use, data structure details
- design justification **is** required
 - (unless analysis/survey project)
 - different in flavour between design study projects and technique projects
 - description of design -- what you did -- is necessary but not sufficient
- publication-level validation **not** required
 - user studies, extensive computational benchmarks, utility to target audience

Report structure: General

- low level: necessary but not sufficient
 - correct grammar/spelling
 - sentence flow
 - ideal: formal technical voice, not conversational style
- medium level: order of explanations
 - build up ideas
 - ideal: carefully structured, not stream-of-consciousness infodump
- high through low level: why/what before how
 - paper level
 - motivation: why should I (reader) care
 - overview: what did you (writer) do
 - details: how did you (writer) do it
 - section level
 - overview then details
 - sometimes subsection or paragraph level

Sample outlines: Design study

- <https://www.cs.ubc.ca/~tmm/courses/547-25/projectdesc.html#outlines>
- Abstract
 - concise summary of your project
 - do not include citations
- Introduction
 - give big picture, establish scope, some background material might be appropriate
- Related work
 - include both work aimed at similar problems & similar solutions
 - **no requirement for research novelty, but still frame how your work relates to prev**
 - cover both academic & relevant non-academic work
 - (you could reorder to have this section later)

Sample outlines: Design study II

- Data and Task Abstractions
 - analyze your domain problem according to book framework (what/why)
 - include both domain-language descriptions and abstract versions
 - could split into data vs task, then domain vs abstract - or vice versa!
 - typically data first then task, so that can refer to data abstr within task abstr
 - must have tight connections** between data & task abstr
- Solution
 - describe your solution idiom (visual encoding and interaction)
 - analyze it according to book framework (how)
 - only for custom encodings, no need to repeat book material for standard chart types
 - justify your design choices** as solutions to problem set up w/ data/task abstractions
 - provide rationale, discuss choices with respect to alternatives
 - if significant algorithm work, discuss algorithm and data structures

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Sample outlines: Design study III

- Implementation
 - medium-level implementation description
 - specifics of what you wrote vs what existing libraries/toolkits/components do
- Milestones
 - breakdown of who did what work
 - remember to update milestones:** add actual hours/date to estimated hours/date
 - totals required
- Results
 - include scenarios of use, extensively illustrated with multiple screenshots of your software
 - walk reader through exactly how your interface succeeds (or falls short) of solving intended problem
 - report on evaluation, if you did any (eg deployment to target users, computational benchmarks)
 - **screenshots should be png (lossless compression) not jpg (lossy compression)!**
- Discussion / Future Work
 - reflect** on your approach: strengths, weaknesses, limitations
 - lessons learned:** what do you know now that you didn't when you started?
 - future work: what would you do if you had more time?

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Sample outlines: Design study IV

- Conclusions
 - summarize what you've done
 - different than abstract since reader has seen all the details
- Bibliography
 - note format is numerical & alphabetical
 - use citation manager / bibtex!
 - make sure to use real references for work that's been published academically
 - not just URL
 - **check arxiv papers**, some have link to final publication venue, also search on titles!
 - check carefully to ensure consistency & nothing mangled or missing**
 - most online sources require cleanup
 - see guidance at <https://www.cs.ubc.ca/~tmm/writing.html#refs>

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Marking

- **design study** & technique & explainer
 - 12.5% each for
 - intro
 - related work
 - abstractions
 - solution
 - implementation/milestones
 - results
 - discussion
- 10% style, 2.5% bibliography

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Sample outlines: Technique (diffs)

- *Abstract, Introduction (same as above)*
- Related Work
 - big focus on similar solutions, some discussion of similar problems (same task/data combo)
- Data and Task Abstractions
 - much shorter than the corresponding one for design studies, framing context not core contrib
- Solution
 - describing proposed idiom exactly, not justifying its use for particular domain problem
 - as above, analyze in terms of design choices, justify why appropriate vs alternatives
- *Implementation/Milestones (same as above)*
- Results
 - less emphasis on scenarios with particular target users
 - more emphasis on characterizing the breadth of possible uses
 - still definitely include screenshots of the system in action
- *Discussion / Future Work, Conclusions, Bibliography (same as above)*

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Sample outlines: Survey (diffs)

- *Abstract (same as above)*
- Introduction
 - discuss the scope of what you're covering, why it's interesting/reasonable partition compared to visualization as a whole
- Related Work
 - only** previous surveys
 - focus on how your work is similar to or different from them, especially wrt coverage
- Main
 - break up into sections based on your own synthesis of themes of work covered
 - you might want a Background section at the start if domain-focused survey
 - where there's important vocabulary/ideas to establish before diving into main discussion
 - analyze visualizations proposed in these papers in terms of what/why/how framework (if applicable)
 - include images from papers
- *Milestones, Discussion / Future Work, Conclusions, Bibliography (same as above)*
- *marking: intro (10%), relwork (10%), main (60%), milestones/discussion (10%), style (10%)*

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Sample outlines: Implementation (diffs)

- *Abstract, Introduction (same as above)*
- Related Work
 - paper you're reimplementing, maybe other closely related work for framing context
 - much shorter than other project types
- Scope
 - big picture of what you did, esp. only a subset of original paper or covering multiple papers
 - nice to have somewhat comprehensible & standalone document but no need to explain in full
 - ok to discuss similarities and differences assuming familiarity with goals of original work
- Implementation
 - detailed implementation discussion: much more than other project types
 - as above, include specifics of what you build on vs what you coded yourself
 - issues that arose: choices unclear in original, subtleties and nuances you discovered along the way, challenges in adapting toolkit capabilities

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Sample outlines: Implementation (diffs)

- Results
 - as above, should include screenshots of your software that illustrate scenarios of how to use it
 - but less emphasis particular target users in scenarios
 - definitely include computational benchmarks to evaluate your work
- *Milestones, Discussion / Future Work, Conclusions, Bibliography (same as above)*
- *marking: intro (10%), relwork (10%), main (60%), milestones/discussion (10%), style (10%)*

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Report marking

- required: at least material I've listed
 - you may include more material
 - you may choose alternate orderings
- reminder: project **content** is 60% of entire project mark
 - report is 25%, presentation is 15%
- you'll get detailed written feedback
 - combined: final presentation, final report, project content
 - in some cases, next steps

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Code / Video

- required: submit your code
 - so I can see what you've done, but I will not post
 - include README.txt file at root with brief roadmap/overview of organization
 - which parts are your code vs libraries
 - how to compile and run
 - but I do not necessarily expect your code compiles on my machine
 - no need to submit data if it's huge
- encouraged but not required
 - submit live demo URL (provide in README.txt file)
 - open-source your code (if so, fine to just send me that URL)
 - submit supporting video (if different from final presentation)
 - with or without voiceover
 - voiceover is very very nice to have later, software bitrot makes demos not last forever!

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Showcase image

- showcase image for projects page
 - 300x300 image
 - call it showcase.png
 - required

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Course Evaluations
(link on Canvas)

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Open Science:
Available, Reproducible, & Replicable
Research

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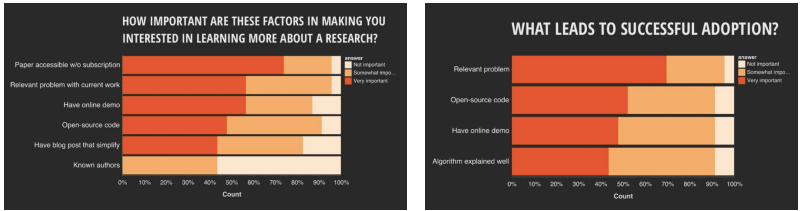
Making your research available & reproducible: why bother?

- moral high ground
 - for Science!
- enlightened self-interest
 - make your own life easier
 - you'll be cited more often by academics
 - your work more likely to be used by industry

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Making the world care about your research!

- Increasing the Impact of Visualization Research panel, VIS 2017
 - Krist Wongsuphasawat, Data Visualization Scientist, Twitter



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<https://www.slideshare.net/kristw/increasing-the-impact-of-visualization-research>

Disseminating research

- paper page for each paper
 - everything! PDF, supplemental materials, videos, software/demos, talk slides, figures, ...
 - examples:
 - Table Scraps, <http://www.cs.ubc.ca/group/infovis/pubs/2020/table-scraps/>
 - TimeLineCurator, <http://www.cs.ubc.ca/labs/imager/tr/2015/TimeLineCurator/>
- write blog post to accompany each paper
 - very high-impact bang for the time buck
 - Multiple Views: Visualization Research Explained umbrella blog <https://medium.com/multiple-views-visualization-research-explained>
 - UW IDL individual lab blog
 - Surprise Maps: Showing the Unexpected <https://medium.com/@uwdata/surprise-maps-showing-the-unexpected-e92b67398865>
 - Bayesian Surprise Maps <http://idl.cs.washington.edu/papers/surprise-maps/>

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<div>Archival dissemination: what to provide</div> <div><ul style="list-style-type: none">• paper<ul style="list-style-type: none">– post it online at non-paywalled site• algorithm<ul style="list-style-type: none">– document well in paper itself– document further with code• code<ul style="list-style-type: none">– make available as open source (github.com)– pick right spot on continuum of effort involved, from minimal to massive<ul style="list-style-type: none">• just put it up warts and all, minimal documentation• well documented and tested• (build a whole community - not the common case)• supplemental materials</div> <div>49</div>	<div>Supplemental materials: provide as much as possible</div> <div><ul style="list-style-type: none">• demo videos: show interactive look & feel• data for computational benchmarks & case studies<ul style="list-style-type: none">– tricky issue in visualization: data might not be yours to release!• qualitative work: thematic analysis raw & intermediate materials• quant experimental stimuli: full set of images, not just a few examples• quant evaluation: data analysis code/scripts• evaluation: detailed study results<ul style="list-style-type: none">– advance planning: ethics approval! if sanitize PII (personally identifiable information)• technique refinement: previous iterations• parameters: how exactly to regenerate/produce figures, tables• additional case studies, screenshots, other exposition• surveys / design spaces: interactive faceted browser<ul style="list-style-type: none">– examples: treevis.net, dashboarddesignpatterns.github.io</div> <div>50</div>	<div>Dissemination & reproducibility: motivation & howto</div> <div><ul style="list-style-type: none">• Open Practices in Vis Research, Steve Haroz<ul style="list-style-type: none">– https://osf.io/8ag3w/download• Cody Dunne VIS22 panel talk (10 min) https://youtu.be/nPdr7xybUbA?t=260<ul style="list-style-type: none">– why important to host stuff on site that will stay forever (arxiv.org, osf.io)<ul style="list-style-type: none">• vs personal and even research group sites that can disappear• appropriately enough his slides hosted at https://osf.io/mfk5z• osf.io<ul style="list-style-type: none">– great for supplemental materials in addition to paper (vs arxiv focus on paper PDF)– can create anonymous view-only link for double-blind review<ul style="list-style-type: none">• https://help.osf.io/article/155-create-a-view-only-link-for-a-registration– advice: post when you submit, update with camera-ready<ul style="list-style-type: none">• don't wait conference presentation, might not happen! (worse yet: promise will do it soon)– examples: osf.io/tr3sb, osf.io/uezfk</div> <div>51</div>	<div>Reproducibility: Levels of effort required</div> <div><ul style="list-style-type: none">• 5: 15 minutes with free tools• 4: 15 minutes with proprietary tools• 3: considerable effort• 2: extreme effort• 1: cannot seem to be reproduced• 0: cannot be reproduced</div> <div><div>[Vandewalle, Kovacevic and Vetterli. Reproducible Research in Signal Processing - What, why, and how. IEEE Signal Processing Magazine, 26(3):37-47, May 2009.]</div></div> <div>52</div>
<div>Replication: crisis in psychology, medicine, etc</div> <div><ul style="list-style-type: none">• early rumblings left me with (ignorable) qualms<ul style="list-style-type: none">– papers: <i>Is most published research false?</i>, <i>Storks Deliver Babies</i> ($p=0.008$), <i>The Earth is spherical</i> ($p < 0.05$), <i>False-Positive Psychology</i>• groundswell of change for what methods are considered legitimate<ul style="list-style-type: none">– out: questionable research practices (QRPs)<ul style="list-style-type: none">• p-hacking / p-value fishing / data dredging• Hypothesizing After Results are Known (HARKing)– in<ul style="list-style-type: none">• replication• pre-registration: avoid "garden of forking paths" & motivated reasoning– brouhaha with bimodal responses<ul style="list-style-type: none">• some people doubling down and defending previous work• many willing to repudiate (their own) earlier styles of working</div> <div>53</div>	<div>Remarkable introspection on methods</div> <div><ul style="list-style-type: none">• psych: thoughtful willingness to change standards of field<ul style="list-style-type: none">– Andrew Gelman's commentary on the Susan Fiske article<ul style="list-style-type: none">• http://andrewgelman.com/2016/09/21/what-has-happened-down-here-is-the-winds-have-changed/– Simone Vazire's entire Sometimes I'm Wrong blog<ul style="list-style-type: none">• http://sometimesimwrong.typepad.com/• especially posts on topic Scientific Integrity– Joe Simmons Data Colada blog post What I Want Our Field to Prioritize<ul style="list-style-type: none">• http://datacolada.org/53/– Dana Carvey's brave statement on her previous power pose work<ul style="list-style-type: none">• http://faculty.haas.berkeley.edu/dana_carney/pdf_My%20position%20on%20power%20poses.pdf</div> <div>54</div>	<div>When and how will this storm hit visualization?</div> <div><ul style="list-style-type: none">• they're ahead of us (they = psychology)<ul style="list-style-type: none">– they have some paper retractions<ul style="list-style-type: none">• we don't (yet) have any retractions for methodological considerations– they agonize about difficulty of getting failure-to-replicate papers accepted<ul style="list-style-type: none">• we hardly ever even try to do such work– they are a much older field<ul style="list-style-type: none">• we're younger: might our power hierarchies thus be less entrenched?...– they are higher profile<ul style="list-style-type: none">• we don't have vis research results appear regularly in major newspapers/magazines– they have rich fabric of blogs as major drivers of discussion<ul style="list-style-type: none">• crosscutting traditional power hierarchies• we have far fewer active bloggers, world has changed• replication crisis was focus of BELIV 2018 workshop at IEEE VIS<ul style="list-style-type: none">– evaluation and BEyond - methodoLogical approaches for Visualization– https://beliv-workshop.github.io/2018/</div> <div>55</div>	<div>Upcoming</div> <div>56</div>
<div>Next week:Advanced topics, research state of the art</div> <div>57</div>	<div>Come talk!</div> <div><ul style="list-style-type: none">• encourage meeting with me to get advice/feedback before final present<ul style="list-style-type: none">– chance to get feedback while you can still act on it– optional, not mandatory– wise to schedule somewhat in advance by email<ul style="list-style-type: none">• can't meet with all 4 teams at very last minute!</div> <div>58</div>		