How to Read, Write, Present Papers

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with help from Professors Walker, Welch, Yen

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Caveats

- Statutory warning : Your advisor may not agree
- Only my opinions
  Random thoughts, often in no particular order
- I do not necessarily follow the advise all the time

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Caveats

- This presentation ignores several of its suggestions
- Could be a good example of a bad talk

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Omissions

- References at the end of the talk provide many suggestions not included in this talk

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Summary

- Use common sense
- Learn from experience

Reading a Paper

Why read papers

- So you know what's happening
- Avoid reinventing the wheel
  - does happen commonly, since there are too many wheel designs around
- Find interesting research topics

Why not to read papers

- Cannot read everything
- Should not read everything
  - too much junk out there
  - of course, one man's junk may be other man's research
- Can suppress innovation
  - once you see solutions using a particular theme, often hard to think differently

Read or not to read, that is the question

- Read, of course
- Know what's important
- Know what can be ignored without significant loss of information

What to read

- Major conferences
  - CS journals are a few years behind, but still can be useful
- Survey papers
  - ACM Computing Surveys
- Tech reports from active research groups
  - need to know which groups to look up

What's in a paper

- Abstract
- Introduction
- Motivation
- Problem description
- …
- Results
- Conclusions

How to read a paper?

Know why you want to read the paper

- To know what's going on (e.g. scanning proceedings)
  - title, authors, abstract
- Papers in your broad research area
  - introduction, motivation, solution description, summary, conclusions
  - sometimes reading more details useful, but not always
- Papers you may want to improve on
  - read entire paper carefully

What to note

- Authors and research group
  - Need to know where to look for a paper on particular topic
- Theme of the solution
  - Should be able to go back to the paper if you need more info
- Note any shortcomings

So this paper is in published literature

- Be skeptical
- If it sounds too good to be true, it probably is

How to Write

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How to write a paper

- Do unto others as you would have them do unto you

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How to write a paper

- Truly exceptional result
  - P == NP
- Probably does not matter how you write it, people will read it anyway

How to write a paper

- Most papers are not that exceptional
- Good writing makes significant difference
- Better to say little clearly, than saying too much unclearly

Readability a Must

- If the paper is not readable, author has not given writing sufficient thought
- Two kinds of referees
  - If I cannot understand the paper, it is the writer's fault
  - If I cannot understand the paper, I cannot reject it
- Don't take chances. Write the paper well.
- Badly written papers typically do not get read, even if they appear in a good conference

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Do not irritate the reader

- Define notation before use
- No one is impressed anymore by Greek symbols
- If you use much notation, make it easy to find
  - summarize most notation in one place

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Do not irritate the reader

- Avoid Using Too Many Acronyms
  - AUTMA ?!
- You may know the acronyms well.
  Do not assume that the reader does (or cares to)

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How to write a theory paper

- Unreadability is not the same thing as formalism
- The reader should understand contributions of the paper without having to read all the details
- If some proofs are not too important, relegate them to an appendix
  - Proofs are not as worthy as new proof techniques

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How to write a systems paper

- Provide sufficient information to allow people to reproduce your results
  - people may want to reproduce exciting results
  - do not assume this won't happen to your paper
  - besides, referees expect the information
- Do not provide wrong information
- Sometimes hard to provide all the details in available space
  - may be forced to omit some information
  - judge what is most essential to the experiments

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Present related work

- Explain how your work relates to state of the art
- Discuss relevant past work by other people too
- Remember, they may be reviewing your paper.
  - The scheme presented by Vaidya et al. performs terribly
  - The scheme by Vaidya et al. does not perform as well in scenario X as it does in scenario Y
- Avoid offending people, unless you must

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Tell them your shortcomings

- If your ideas do not work well in some interesting scenarios, tell the reader
- People appreciate a balanced presentation

How to write weak results

- Do not hide poor results behind bad writing
- If results are not that great, come up with better ones
- Else, write them well, but consider publishing in not-the-best conference

How to Present

How to present a paper

- Do unto others as you would have them do unto you

How to present a paper
(at a conference)

Objectives, in decreasing order of importance

- Keep people awake and attentive
  - everything has been tried: play fiddle, cartoons, jokes
  - in most cases, such extreme measures should not be needed
  - little humor does not kill anyone
- Get the problem definition across
  - people in the audience may not be working on your problem

Objectives …

- Explain your general approach
  - most productive use of your time
- Dirty details
  - most people in the audience probably do not care
  - a typical conference includes 30+ paper presentations, yours could be the n-th

Talk Outline or Not ?

- Useful when several ideas discussed in a single talk
- Short talks : Skip the outline
- Long talks : Include an outline
- Make the outline interesting

Text

You want people to (quickly) read your slides

- Use big enough font
- Do not put too much on one slide
  - do not want them to spend time reading, instead of listening
- Use good color schemes

Not blue on yellow

Text

- Slide text need not be grammatically accurate

- Keep it short
  - OK to omit some details
  - fill them in when you present the paper

Practice makes perfect
versus
Practice can improve your presentations

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PowerPoint, but not excessively

- Everybody has used PowerPoint
- No one is impressed by fancy backgrounds anymore
- Avoid using gratuitous animation
- Standard PowerPoint layouts can be useful
  - decent font sizes and color schemes

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Picture is worth 1000 words

- Use illustrations to explain complex algorithms
- Omit minor details, focus on the important
- They can read the paper to know the exact algorithm

How to present a paper

- Avoid blocking the screen
- Point to the screen, rather than the slide on the projector

How many slides?

- Depends on personal style
- Rules of thumb
  - 1 slides for 1-2 minutes
  - Know your pace
- I tend to make more slides than I might need, and skip the not-so-important ones dynamically
- Anticipate technical questions, and prepare explanatory slides

How to present a paper

- Practice makes perfect (or tolerable)
- May need several trials to fit your talk to available time

If English is Your Second Language

- Accent may not be easy to understand
- Talk slowly
- Easier said than done
  - I have a tough time slowing down myself

No Substitute for Experience

- Nothing like a terrible presentation to learn what not to do
- Try to learn from other people’s mistake, instead of waiting for your own

Summary

- Use common sense
- Learn from experience
- Enjoy!
  - Papers can be fun, contrary to popular opinion

Useful references

- Speaker's Guide, Ian Parberry

http://hercule.csci.unt.edu/ian/guides/guides.html

- The Best Method for Presentation of Research Results, Veljko Milutinovic

http://www.computer.org/tab/tcca/NEWS/sept96/sept96.htm