Paper Reading and Presentation

CMPS 7010 Research Seminar

A Three-Phase Approach

- How to read a paper by Srinivasan Keshav, University of Waterloo
- Phase 1 (5-10 min)
  - Carefully read the title, abstract, and intro
  - Read the section and subsection titles
  - Read the conclusions
  - Glance over the references

  - Answer five Cs: category, context, correctness, contributions, clarity
  - For your own paper, expect most reviewers to make only one pass over it

A Three-Phase Approach (cont.)

- Phase 2 (up to an hour)
  - Read the paper with great care but ignore details such as proofs
  - Look carefully at the figures, diagrams and other illustrations
  - Remember to mark relevant unread references for further reading

- What if you still don’t understand the paper
  - set the paper aside
  - return to it later
  - persevere and go on to the third pass

A Three-Phase Approach (cont.)

- Phase 3 (~4-5 hours)
  - Try to virtually reimplement the paper
  - Identify and challenge every assumption in every statement
  - Think about how you yourself would present a particular idea/proof
  - Jot down ideas for future work

- At the end of this phase, you should be able to
  - Reconstruct the entire structure of the paper from memory
  - Identify strong and weak points
  - Pinpoint implicit assumptions, missing citations, potential issues in experiments or analysis

How to Do a Literature Survey

1. Use an academic search engine (e.g., Google Scholar) to find 3-5 recent papers. Do one pass on each paper and read their related work sections.
2. Find shared citation and repeated author names in the bibliography. These are the key papers and key researchers in the area. Identify where they've published recently to find the top conferences in the field.
3. Make two passes on the key papers and related work from the recent proceedings of the top conferences.
4. Iterate if necessary.

Conferences vs. Journals

- Conferences
  - Annual/occasional meetings organized by a committee
  - There is a typically a submission deadline
  - Papers are evaluated by a group of appointed paper reviewers
  - Paper accepted are published in the conference proceedings
  - At least one author of an accepted paper needs to present it (you have the chance to better advertise your work)
  - Self-funded: people who attend pay a registration fee

Conferences vs. Journals

- New Trends in (Top) CS Conferences
  - Rebuttal phase
  - Multiple submission opportunities (multiple deadlines)
  - Journal publication
  - Open review

Conferences vs. Journals

- Journals
  - involve several rounds of reviews: reject, major revision, minor revision, accepted for publication
  - may accept extensions of conference papers (20-30% of new material)
    - Not all the journals have new material requirement
  - you can submit at any time
  - typically no registration/publication fee

Conferences vs. Journals

- Conferences are typically preferred in Computer Science
  - High status, higher visibility, greater impact, higher quality, more timely
  - There are exceptions
- Why journals
  - Longer page limit
  - More detailed reviews (maybe)
  - Opportunity of revise and resubmit
  - Higher acceptance rates

Other Sources

- Google scholar: citations, h-index
- ResearchGate
- Personal webpages

How to Give Oral Talks

- "How to Present a Paper in Theoretical Computer Science: A Speaker's Guide for Students" by Ian Parberry
- "Oral Presentation Advice" by Mark D. Hill
- "How to deliver a great academic job talk" by Philip J. Guo
- "Ten simple rules for giving an effective academic job talk" by Shayna A. Sura et al.

What to Say and How to Say It

- Goal of a conference talk: get people interested in your work
  - Leave your audience with a clear picture of the gist of your contribution
  - Make them want to read your paper
- Goal of a job talk: get the job
  - Get people interested in your work
  - Impress experts with the depth
  - Demonstrate that you are a good teacher/research collaborator
- Communicate the key idea
  - Skip what is standard or obvious
  - Skip details: all details are in the paper

Structure of a Talk

- A general structure for a computer science talk
  - Introduction (informal)
  - Body (more formal, but abstract)
  - Technicalities (details on the key results of the paper)
  - Evaluation (practical relevance)
  - Conclusion (wrap up talk)
- Guide the audience, make transitional statements

Introduction

➢ Often the most important part – sets the tone for the entire talk

- Define the problem
  - succinctly and accurately
- Motivate the audience
  - why the problem is important?
- Introduce terminology

Introduction (cont.)

- Discuss related work
  - Highlight both recent and seminal ones
  - Compare fairly and directly
- Emphasize the contribution
- Provide a road-map

The Body

- Abstract the major results
- Explain the significance of the results
- Sketch proofs of the crucial results
  - Discuss new methods, key insights, etc.

Technicalities

- Present one key result and its proof carefully
  - It’s ok to lose the attention of non-experts at this point

Evaluation

- Discuss evaluation settings
- Show the key results
- Highlight insights and practical relevance

Conclusion

- Summarize your talk
- discuss open problems/future work
- Indicate that your talk is over

Making Slides

- Use large enough fonts (minimum 20 points font)
- Don’t overload slides
  - Try not to write full sentences
- Use figures, tables and animations
- Use colors efficiently
- Typeset professional math equations
  - Powerpoint equations, LaTex add-in, etc.

Getting Through to the Audience

- Know your audience
  - Scientists
  - Computer scientists
  - Computer scientists in your area
  - Experts in your sub-area
- Use repetition
  - Intro: “We will discuss”
  - Body and technicalities: “Let’s discuss”
  - Conclusion: “We have discussed”

Getting Through to the Audience (cont.)

- Remind, don’t assume
- Don’t over-run
  - ~1.5 minute per slide
  - Conference talk (~20 min): ~15 slides
  - Job talk (~50 min): ~35 slides + a few backup slides

Getting Through to the Audience (cont.)

- Don’t read from the slides
- Maintain eye contact
- Project energy and vitality
- Practice, practice, practice
  - pay attention to timing
  - practice words you find hard to pronounce
  - check spelling, grammar and legibility
  - smooth transitions (you should always know what the next slide is about)
  - …

Question Time

- Opportunities to
  - get feedback
  - clarify important points
  - know if listeners are interested
- Types of questions
  - genuine request for knowledge
  - selfish question
  - malicious question
- Answers
  - be prepared
  - be polite
  - avoid lengthy exchange
- It’s ok to say
  - “Let’s continue our discussion off-line”
  - “I don’t know”