Writing and Reading Papers

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Research Methods for Empirical Computer Science
CMPSCI 691DD
Why read papers?
Because they’re like textbooks?
“...the authors are clearly not familiar with the literature and need to substantially improve the ‘related work’ section of the paper before it can be accepted for publication...”
Because they help you create a map
Recall Curie, Joliot, and Chadwick
How do you find papers to read?
Tips for finding good papers

• Generate candidate papers
  • Citation indices (e.g., Rexa, CiteSeer, Google Scholar)
  • People ( “The best information system...” )
  • Review articles (e.g., Computing Surveys) and tutorials
  • Prior reading

• ... by using heuristics to understand the landscape...
  • Papers and authors that are hubs and authorities
  • Venues that publish high quality and relevant work
  • Research communities that are often separated and for which you need to learn the language
  • Recency (e.g., current conferences, workshops, journals)

• ... and then evaluate candidates by “reading”
How do you read a paper?
Reading a paper

- Many papers are...
  - Not worth reading
  - Not worth reading in detail
    - Don’t hesitate to “black box” some portions
    - “Read” selectively (abstract, headings, conclusions)
  - Wrong
  - Correct but uninteresting
- Thus you should...
  - Try to identify good papers before you read in detail
  - Read sympathetically, but only at first
  - Think outside the paper
    - Does the paper make falsifiable claims?
    - What’s missing?
    - What are the assumptions?
Why do scientists publish?
Twin goals of scientific publishing

• Reward “priority” (being first)
  • Recognize innovative researchers
  • Encourage speed and efficiency in research efforts
  • Approach — Require future citation
• Disseminate a shared knowledge base
  • Provide a foundation for other researchers to build upon
  • Approach — Require open publication with disclosure of methods and data
What might this explain?

- Structure of research groups and scientific communities
- Structure of secret research facilities
- Relatively slow progress of science in “closed” groups
- Why some researchers don’t publish immediately
- Why some results are incomplete or wrong
Publishing venues

• Types
  • Technical reports
  • Workshops and symposia
  • Conferences
  • Journals

• How they differ
  • Speed of publication
  • Amount of reviewing
  • Trust of other researchers
  • Breadth of dissemination
Why should you write papers?

• Establish priority
• Crystallize your own thinking
• Allow you to “move on” with your research
• Connect you with others who can aid your research, in other words: “Join the scientific conversation”
  • Researchers
  • Supporters (e.g., funding agencies)
  • Institutions (e.g., universities, companies)