CM50175 – Research Project Preparation

How do You Read a Research Paper?

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Question (until 4:30)

How did you read the paper?

- In what order did you read the sections?
- Did you finish it?
- Do you think you understand it?

How Good is the Source?

The paper you read today emphasised that even experts in a field may miss important parts of an argument. The way science deals with this fact is through *peer review*.

How Good is the Source?

- Good journal articles are reviewed by three reviewers plus an editor. The paper is not accepted until everyone is satisfied. This can take years!
- There are less-good journals. Indications of journal quality:
  - Editing / printing / publisher.
  - Who is on the board / who publishes in it.
  - Impact factor.
  - Quality of articles.

How Good is the Source?

- Good journal articles.
- Good conferences also have several reviewers, but they only have a few weeks to review, and there may be no double-checking that the authors conform to the reviewers comments.
- Some conferences have little or no reviewing.
- In fields other than Computer Science and AI, frequently conferences are based only on an abstract.

How Good is the Source?

- Good journal articles.
- Good conferences.
- Book *proposals* are reviewed by publishers, editors, sometimes external experts. But books are *not* really peer reviewed.
- Magazines, newspapers and the web can expose you to ideas and help you understand things, but they are not *really* peer reviewed.

How do You Read a Paper?

- First: title, abstract, authors
- Second: bibliography
- Next: results *briefly* $\Leftrightarrow$ (discussion / conclusion)
- Finally: introduction / background;// (methods $\Leftrightarrow$ results)
- Alternative: Skim the whole thing quickly for structure, then revisit for real understanding parts that seem important.

What are you looking for? (First)

- abstract: What is it about?
  not: What did they prove?
- bibliography: Who do they know about? Where are they coming from?
- results (first pass): What kind of evidence do they have?
- discussion, conclusion: What do the authors consider to be the significance of their results?

What are you looking for? (Next)

- introduction / background: Do they have a good assessment of the literature? Are they current? Do they know about other articles you should read?
- results: Do you believe them? What exactly do they prove?
- method: Is their procedure appropriate? If you changed something, would you expect another result? Could you replicate the work they have done?

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A Brief Aside: Replication

- Necessary first step before either extending or overturning a result.
- The only way to know for sure that you understand the research.
- May be difficult / impossible (may overturn the result!)
- Good first part of a project.

Starting Small: Replications and Prototypes

- Make sure you and your supervisor understand your project.
- Make sure you know what the hard parts of your project are.
- Make sure *something* works!
- Use as a standard of comparison.

Questions

- What is the argument of the paper?
- Is it well supported?
- What would convince you / unconvince you of their result?