



Reading papers

Research Methods for Human-Centered Computing



Reading papers

Today's goal:

Teach you how to select, read, and review papers

Outline:

- Selecting papers to read
- Reading papers
- Reviewing papers*



Selecting papers

What should I read?



Selecting papers

Not all papers are created equal

Several indicators of paper quality

There is too much to read!

If I have 10 papers on a certain topic, which should I read (first)?



Paper status

Not all papers have the same status

Lower status papers:

- Unpublished work (tech report, Arxiv)
- Non-archival work (workshop papers, white papers)
- Work that is not peer-reviewed (invited articles, chapters*)
- Work in “iffy” venues (low-ranked conferences or journals)



Paper status

Not all papers have the same status

Higher status papers:

- Work at top conferences (see Microsoft Academic)
- Work in high-ranked journals (check the “impact factor”)
- Work with many citations (discount for age of paper)
- Newer work (if you are looking for the state-of-the-art)



Paper type

Among 10 papers, I should read...

If you are looking for an introduction to a field:

- A textbook

- A well-cited handbook chapter

- A recent journal paper or chapter by one of the “founders” of the field

- A recent systematic literature review



Paper type

Among 10 papers, I should read...

If you are looking for a certain theory/methodology:

- The original paper that introduced it

- The most recent well-cited reflection paper

- A few well-cited applications

If you are looking for the state-of-the-art:

- The most recent paper at a respectable venue

- Look for “best paper award” winners



Paper type

There are 3-4 papers by the same authors that are very similar! Which one should I read?

Common situation:

Write a workshop paper, turn it into a conference paper

Apply the same idea to a slightly different scenario:
combine with the conference paper into a journal paper

Make some improvements to the method: another
conference paper

Combine everything into a book chapter



Paper type

Strategy:

If the authors did a good job: read the last “big” paper (journal or chapter) and any conference papers that came after that

If this is confusing, the authors likely assume you know their original work → read their very first paper on the topic



Read the abstract!

For every paper I actually read, I read about 5 abstracts

For you this number is likely going to be even higher

A good abstract explains:

- what problem/gap the paper addresses
- the question or conjecture regarding this problem/gap
- what the authors did to address it (type of study, methods, etc.)
- what the main findings and implications are



Reading papers

How should I read?



Reading papers

I almost never read a paper completely from front to back

In fact, I don't even read it in that order!

Things I always read first:

- Abstract (to determine whether I want to read the paper)
- Introduction (to really understand what the paper is going to be about)

After that, it depends...



Reading papers

If I'm just interested in the **results** of the study:

- Stop here (often the intro has the most important outcomes)
- Read the discussion section (gain depth of understanding)
- Read the conclusion section (often has the higher-level discussion... sometimes useful for quotable text)

I would **not** read the results section!

Usually too detailed with technical aspects

Sometimes I'll stare at the tables/figures



Reading papers

If I'm interested in **how** the authors did the study:

- Read the methods section
- Read the results section

If I'm in the process of my **literature review**:

Read targeted portions of the related works section, with the explicit goal of finding papers that fit your topic



Take notes!

Take notes while you are reading

Either straight on the PDF or in your citation management software

Taking notes can help you later

By the time you actually want to cite the paper, you may have forgotten why it was relevant

Taking notes helps you understand

Working through the author's argument in your own words is the best way to know whether you understand it



Reviewing papers

How do I judge papers?



Reviewing papers

Workshops, conferences, and journals send out submitted papers for **peer review**

Reviewers are usually faculty or post-docs

Occasionally (senior) grad students

Doing a “mock review” with your advisor is a great way to learn!

Peer review is often single- or double-blind

Single: you see authors' names but they don't see yours

Double: you don't get to see the authors' names either



Review criteria

Main goal: judging the **quality** of the work

Not really about whether you “like” the paper it,

More about whether it is valid and significant

Does it contribute something useful to the body of knowledge?

You should draw from your expertise

If you're insufficiently knowledgeable: don't review it!

Or: focus on the part that is within your area of expertise

There's usually a way to indicate your level of expertise



Typical criteria

Technical content and accuracy

Significance of the work

Appropriate title, introduction and conclusion

Overall organization

Appropriateness for this venue (conference/journal)

Style and clarity

Originality of the content



Per section

Intro: Does it give a solid motivation for the research question? Is the research question clearly defined?

Related work: Is it relevant? Do the authors clearly explain the contribution of their work beyond prior research?

Research methods: Are they appropriate? Are they clearly explained (replicable)?



Per section

Results: Are the analyses valid? Does it go into sufficient depth?

Discussion: Are the results interpreted in enough depth?

Implications: Are they useful? Do they follow from the results?



What to look for

Most important: is the paper **technically** sound?

Are the methods correctly applied, is the analysis valid?

But also: is the study appropriate? Does it answer the questions it claims to answer?

If not, can this easily be fixed?

If so, demand revisions

If not, reject!



What to look for

Also very important: Is the contribution **substantial**?

If not, likely reject

Less important: Is it written **nicely**/appropriately?

If not, likely a revision, usually minor (unless you want e.g. a complete theoretical reframing)

Is the research and/or its outcome **ethical**?

Usually it is because of IRB, but check nonetheless

If you find **plagiarism**, report to the editor/AC



Some tips

Keep yourself “grounded”

It’s easy to be very critical!

Judge the paper on its merits

Ask yourself: “is what the authors did valid?”

Refrain from asking “How would I have done it better?”

Unless you find a problem, of course

A paper does not have to be perfect

but limitations should be acknowledged!



Writing a review

Summarize

List the positives, if any

Give an overall verdict and main reasons for this verdict

e.g. “I reject for these two main reasons”

This can also come at the end of the review

Go into detail on your main points one by one

Where appropriate* ask for clarifications



Writing a review

List minor points

e.g. spelling errors, missing graphs, etc.

If you recommend a revision, explain what needs to be revised in order to be acceptable



Review style

Be nice, professional

Write to the editor, not to the authors

Where possible, talk about the paper, not the authors

But if needed, you can talk about the authors

However, don't address them directly (just say "the authors should..." rather than "you should...")



Giving a score

For conferences: often a scaled score

-3 to +3, -2 to +2, 1 to 5

Usually with labels such as “definite reject, possible reject, neutral, possible accept, definite accept”

Scores tend to be low

CHI papers are scored 1-5 with half-point increments; this year's mean score is 2.5 pre-rebuttal... papers are discussed in a meeting, and it is definitely possible for a 2.5 average paper to get in, or for a 3.5 average paper to get rejected!



Giving a score

For journals: usually: reject, reject with an option to resubmit, major revisions, minor revisions, accept

Papers rarely get accepted (or even minor revisions) on the first round

Major revisions = I see a clear path for this paper to get accepted

Reject and resubmit = I encourage the authors to try this again based on my feedback

Reject = this research is pointless / not suitable / far below the standard of this journal (basically: don't come back)



Reviewing process

Try to do your reviews on time

There are many more time-sensitive steps to be taken!

Once you submit your review, you can usually see others' reviews

Read them! This is how you learn how to write a good review, and a good paper...

Discuss

Important to talk about contradictions and differences in opinion; the editor or AC will guide this process



Rebuttals

If there is a rebuttal phase:

Explicitly tell the authors what you'd like to hear from them in the rebuttal

Set your score to the best of your current knowledge

You can adjust based on the rebuttal

If you do then this is usually an upward adjustment



Writing rebuttals

Be nice, thankful, and polite

The reviewers invested a lot of time in helping you

If the reviewers didn't understand the paper, 90% of the time this is because you didn't write it clear enough

Address misconceptions (most important)

Provide counterarguments (usually tradeoffs)

Pro tip: play reviewers against each other



Responding

If you are responding to a rebuttal:

- Acknowledge that you've read the rebuttal

- Explain whether you are convinced by the points (and if not why not)

- Point out if the authors failed to address important questions/problems

In a journal, rebuttals are part of the revision phase:

- Focus your judgments on the revisions and/or the explanations