

# How to Read a Paper

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# Why should we read papers?

- Peer-review for a conference/journal
- Keep up with current research trend
- Literature survey
- How can we read a paper, efficiently?
  - *Three-pass method*

# How to read a paper efficiently

- Three-pass method
  - first pass: get the general idea
  - second pass: get the content, not detail
  - third pass: understand in depth

# The first pass

- Quick scan in 5-10 minutes
- Carefully read
  - Title, abstract, and introduction, conclusion
  - Section/subsection headings
  - Skim through References
- Answer the following
  - **Category:** measurement? analysis? implementation? survey?
  - **Context:** related papers? theoretical basis?
  - **Correctness:** assumptions are valid?
  - **Contributions**
  - **Clarity**
- Decide on further reading

# The second pass

- Read with care but no detail (upto 1 hour)
- Carefully read figures, graphs, tables
- Mark unread references for future reading
- You can
  - summarize the paper to someone else
  - understand the evidence of the idea
- Decide on further reading

# The third pass

- Fully understand the paper (4-5 hours)
- Try to virtually re-implement the paper
  - Start with the same assumptions
  - identify innovations and failings, hidden assumptions
- Learn presentation/proof/ evaluation techniques
- Write down the idea of future work
- You can
  - reconstruct the structure of the paper from memory
  - Identify strong and weak points
  - Pinpoint implicit assumptions, missing citations, potential issues

# How to do a literature survey

1. Find 3~5 recent papers in search engines (Google Scholar or CiteSeer)
  - Make one pass, get a sense, read related-work section
  - if find a survey paper, done!
2. Find shared citations / authors
  - Download key papers → paper-set A
  - Find key authors' websites, check recent publications
  - Identify top conferences in the field
3. Go to top conference websites
  - find recent high-quality papers → paper-set B
4. Make first/second pass on A+B
  - Identify key papers that you missed

# Benefit

- Prevents you from drowning in details
- Allows you to estimate review time
- You can adjust depth of paper evaluation depending on your need and time

# Writing reviews for systems conferences

Timothy Roscoe

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# Structure of a review (1)

## 1. Summarize the paper

- Neutral description of
  - what the paper is about
  - starting assumptions
  - why the problem is important
  - what the authors have done

## 2. State what you think the contributions are

- Written or hidden contributions

# Structure of a review (2)

## 3. Provide specific comments

- Technical first, and small points (typos, mistakes)
- Novelty?
- Clarity?
- Flaws?
- Unaddressed issues?
- Coolness?
- Interesting?
- Appropriate for the venue?

## 4. Conclude

- Summarize good and bad points

# Tone

- You are anonymous, so be responsible
- Be honest about your familiarity
- Be constructive
  - Criticize the paper, not the work
  - *This system doesn't deal with unexpected inputs*
  - *This paper would be much stronger if it discussed how the system deals with unexpected inputs*
- It is always possible that you misunderstood the paper
  - The algorithm in the paper breaks in the presence of Byzantine faults
  - The description of the paper left me worried that ..., because...