**Tips for Reading Research Papers**

## Step 1. Identify your Goal

What is your goal? - Easy: to answer the video response question - Very important first step.

Often the goal is to put this paper in context with your own work. Some questions?

* Can I use this technique for my work?
* How does my work compare?
* Does this paper explain how something works that would save me time?
* Does this paper's explanations fit with my own understanding?

Sometimes the goal is more general acquisition of knowledge (or to review the paper).

* What is the problem?
* Is the problem important? (Not: do How to Read a CS Research Paper:you find this problem interesting)
* What has changed that makes a solution now possible?
* What is the intellectual nugget? The key insights?
* What are the claimed contributions?

## Step 2. Do several Quick Pass

Pass 1. Read the Introduction and the Conclusion. Pass 2. Read the opening paragraph and figure captions. Pass 3. Focus on your specific goal.

## Step 3. Identify the Core

Useful if your goal is understanding the broader picture.j;w

Intellectual nuggets:

* Often you'll find that the key idea is very simple.
* Though, The devil is always in the details

Paper contributions (Claimed):

* Contribution to scientific knowledge.
* Engineering work alone is rarely a contribution.
* Common examples (in security):
  + a new technique/algorithm
  + new experimental method
  + identification of new problem
  + a new observation/insight/understanding of an old problem
* What are the actual contributions (in your opinion)?
* Are these significant contributions?

## Alternative Step 3. Focus on specific section

If your goal is to understand how a particular component works, focus on that subsection.

# Other Tips

Your goal dictates what you should focus on. - Could be the big picture, skipping low-level details, if new to the field - Could be the low-level details (if comparing to your own work), skipping background/motivation.

Draw Connections

* Think about other papers you have read recently
* How does this paper expand on previous work.

Focus on the positives!

Write a TLDR

* Usually of the form: Solve problem X by using technique Y. Nugget: Z

Think about things you would improve and problems that haven't been solved:

* possible future work!

Consider using paper management tool: - Papers - paperpile - and many others

# Structure of the Introduction

The intro is the most important part of the paper for reviewers, though not necessarily for readers.

Common structure:

* Para 1. Motivation
* Para 2. Specific problem
* Para 3. Approach. Summary of what this paper does.
* Para 4. Contrasts with previous work (papers missing this rarely get accepted)
* Contribution bullets.
* Para 5. "The remainder of this paper is structured as follows..."

**Research Paper Tips**

Step 1: Identify a Goal to ground yourself with to check back on

* Identify how your own work applies directly to the paper

Step 2: Quick Pass over the paper (Requires multiple passes)

* Introduction & Conclusion/Summary (Gives high level overview of what the paper is solving)
* Opening Paragraph of each section & Figure Captions
* Identify the core intellectual nugget presented in the paper (The new idea). What are the claimed contributions to the greater scientific knowledge
* Depends on what your goal is

The first two passes should take 30 minutes, whereas the last pass can take as long as you need to fulfill your goal

Papers are often written for reviewers. Meaning that people will author papers just to make them happy, even though that is not who the paper will be read by as often.

**Introductions**

* Paragraph 1: The motivation behind the paper, and why its important
* Paragraph 2: The specific problem that the paper is trying to solve
* Paragraph 3: The approach to solving the problem
* Paragraph 4: The contrast between the papers work and what’s already out there
* Contribution Bullet Points: Lets the reviewers easily see what's being added to scientific knowledge
* Paragraph 5: How the paper is structured