



# HOW TO READ AN ACADEMIC PAPER



# What we're going to cover

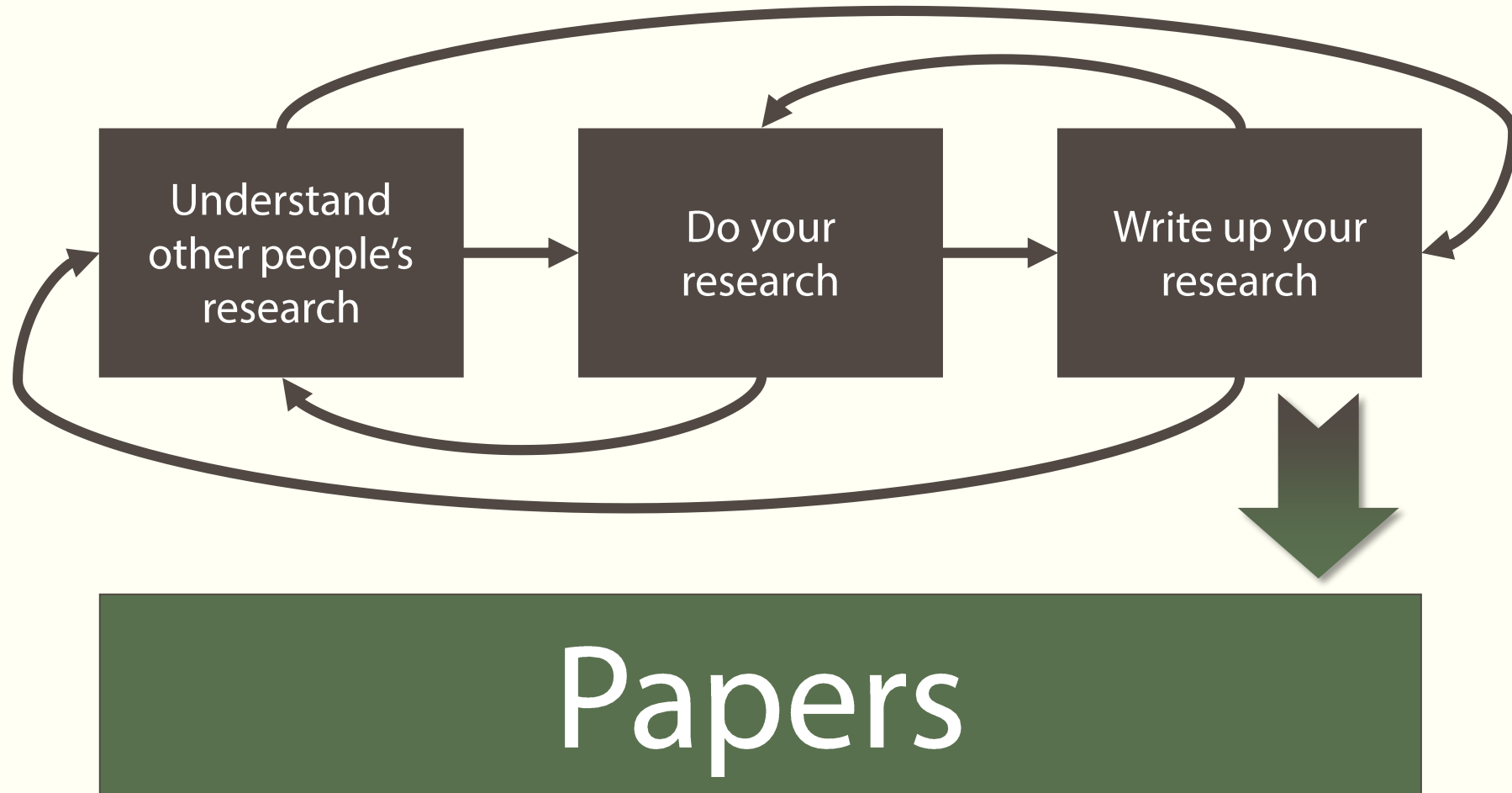
---

1. Research process
2. Nature of academic writing
3. Questions to ask
4. About publications
5. How to read a paper

# The research process

---

---



# The research process

---

---

Understand  
other people's  
research

Do your  
research

Write up your  
research

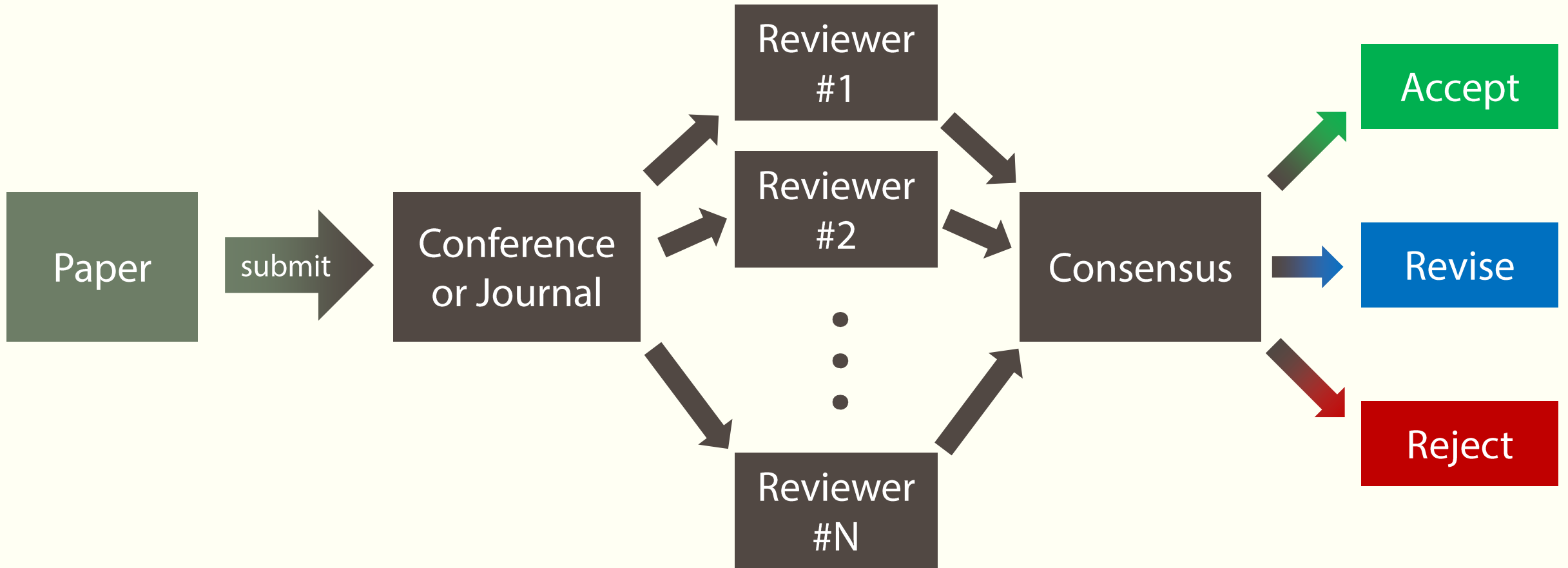


Papers

# The peer-review process

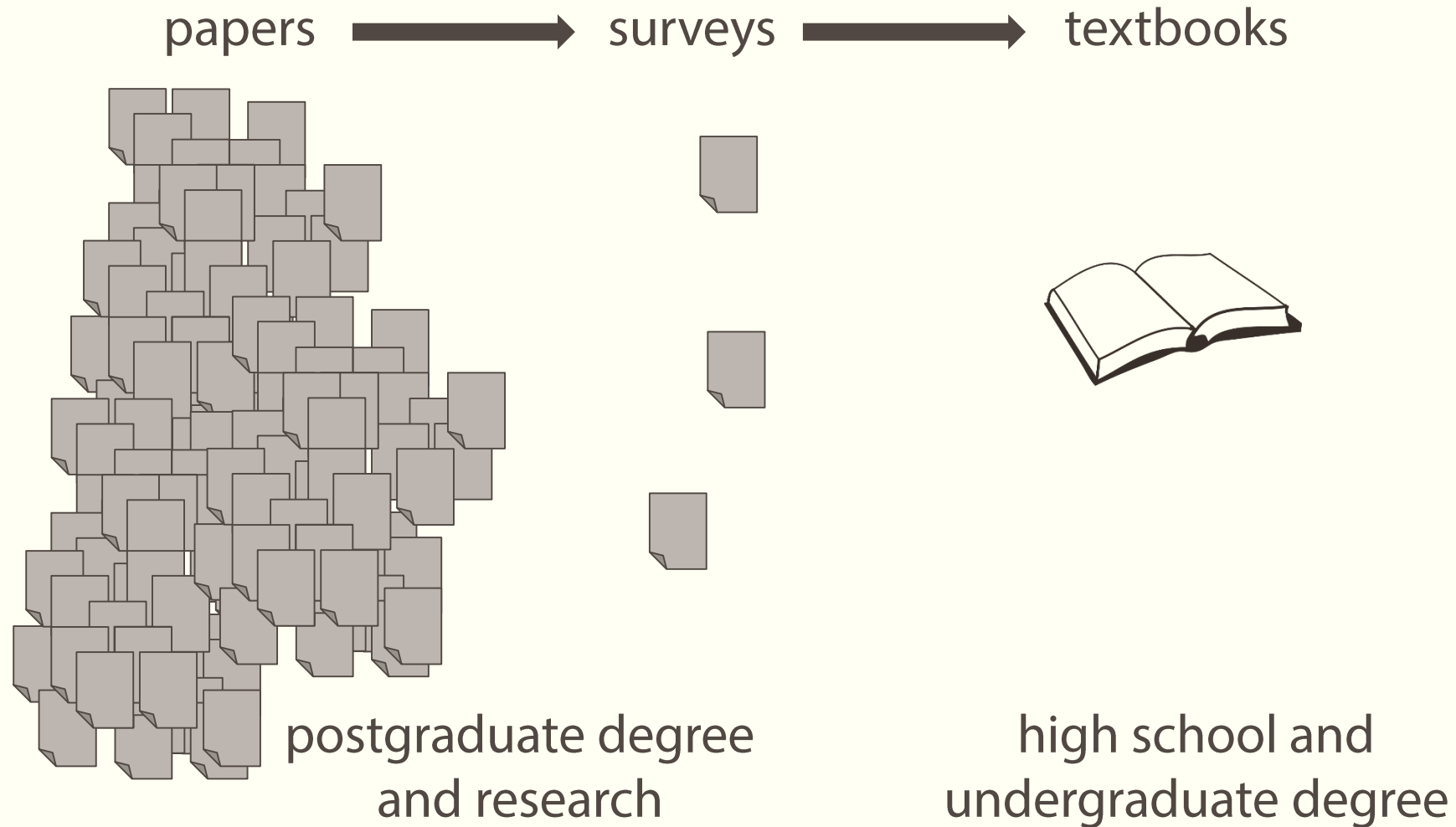
---

---



# The nature of academic writing

---




# The nature of academic writing

---

papers → surveys → textbooks

**papers  
are not  
text books**



# The nature of papers

---

- |                 |                  |
|-----------------|------------------|
| ■ Good research | Poor research    |
| ■ Correct       | Wrong            |
| ■ Important     | Unimportant      |
| ■ Well written  | Incomprehensible |



# The nature of papers

---

- Good research

- Correct

- Important

- Well written

Apply critical judgement  
Ask questions as you read

Choose the right  
papers to read

# Questions to ask

---

- Do I need to read this?
- What are the researchers trying to find out?
- Why is the research important?
- What things were measured?
- What were the results?
- What do the authors conclude and why?
- Can I accept the findings as true?

# Why publish?

---

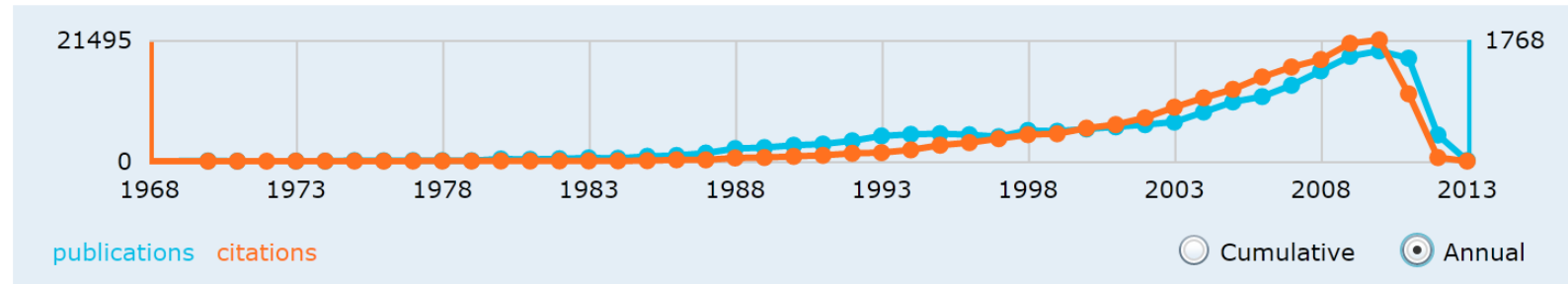
- primarily to communicate:
  - new ideas and theories
  - solutions to existing and new problems
  - combinations of existing and new components (systems)
  - organise work on some topic (surveys, text books)
- but also (to a lesser extent):
  - for (a sense of) achievement
  - to travel to new places and meet new people
  - to further one's academic career
  - get well known for your work

# Exponential growth of publications

## Computer Vision - CV

Publications: 18,672 | Citation Count: 218,721

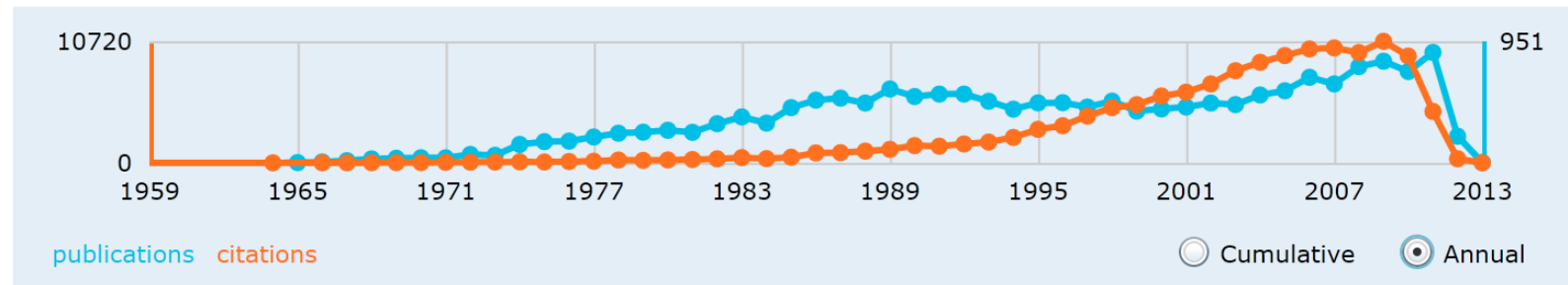
Stemming Variations: computational vision, computer visions, Computing Vision, Computation Vision, Comput Vision



## Computer Graphic

Publications: 19,226 | Citation Count: 163,699

Stemming Variations: computer graphics, computation graphics, computation graphical, computers graphic, computer graphical



# Publication venues

---

- posters
- technical reports, memos
- workshop papers
- conference papers
- journal articles
- book chapters
- dissertations
- text books
- one can lead to another
  - work-in-progress poster before main publication
  - extended conference paper as journal article
  - etc.

# Where to find papers

---

- Google Scholar
- CiteSeerX
- DBLP
- CVF website (CVPR, ICCV)
- Ke-Sen Huang's website (SIGGRAPH, EG, EGSR)
- authors' websites
- institutional repository
- digital libraries:
  - ACM Digital Library
  - IEEE Explore
  - SpringerLink, Wiley Online Library, Elsevier ScienceDirect, ...
- traditional libraries:
  - Campus-Bibliothek für Informatik und Mathematik
  - Saarländische Universitäts- und Landesbibliothek (SULB)
  - Deutsche Nationalbibliothek
  - Google Books

# Parts of a paper

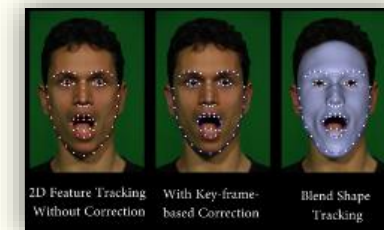
---

- title
- teaser
- abstract
- introduction
- related work
- overview
- methods
- results
- discussion
- conclusion
- references
- appendices
- supplemental material:
  - images, videos
  - supporting documents

# Parts of a paper (example)

## Reconstructing Detailed Dynamic Face Geometry from Monocular Video [Garrido et al., SIGGRAPH Asia 2013]

supplemental document



video

presentation



# How to read a paper (by S. Keshav)

---

- Suggested approach for efficient reading
- Make up to three passes over the paper:
  1. quick pass:
    - get general idea about the paper
  2. content pass:
    - grasp paper contents, but skip details
  3. details pass:
    - understand the paper in depth

# How to read a paper – Pass 1

---

- quick scan to get a bird's-eye view of the paper
- decide whether you need to do any more passes
- should take about 5–10 minutes:
  1. carefully read title, abstract and introduction
  2. read headings, but ignore everything else
  3. look at the maths (if any)
  4. read conclusion
  5. glance over the references

## How to read a paper – Pass 2

---

- read the paper with greater care, but ignore details
- it helps to make notes in the margins as you read
- look carefully at figures, diagrams and other illustrations
- this level of detail is appropriate for an interesting paper outside your research speciality
- if you still don't understand a paper, you can choose to:
  - a) set the paper aside
  - b) return to the paper later
  - c) persevere and go on to the third pass

# How to read a paper – Pass 3

---

- the key is to attempt to virtually re-implement the paper:
  - make the same assumptions as the authors, re-create the work.
  - compare your re-creation with the actual paper
- this pass requires great attention to detail
- identify and challenge every assumption
- should be able to identify strong and weak points:
  - implicit assumptions
  - missing citations to relevant work
  - potential issues with experimental or analytical techniques

# Remember what you read

---

- organise papers to keep track of them:
  - BibTeX file: e.g. using JabRef
  - Mendeley: free online reference manager with social network
  - Zotero: free (open-source) desktop reference manager
  - Papers for Mac, iOS, Windows: paid desktop/mobile reference manager
- minimum paper details:
  - authors, title, venue, year, page numbers, keywords, abstract
- write a brief summary:
  - problem(s), solution(s), results, future work

# Conclusion

---

---

- Papers are used to communicate research
- Don't expect all papers to be totally correct and well written
- There are different paper categories and venues
- Don't read them like a text book
- Think when reading
- Don't get frustrated if you do not understand anything



---

---

# QUESTIONS?

---

---