How to read scientific articles

Paisit Khanarsa, Ph.D.

Institute of Field Robotics (FIBO), King Mongkut's University of Technology Thonburi

2 Paper types

- Review article/tutorial
  - Give insights about the field
  - Useful for learning about a new field
  - Read multiple to avoid the author's bias
  - Title usually has "review", "survey" or "tutorial"
- Primary research article
  - More details on the experiments and results

Parts of an article

- Abstract
- Introduction
- Methods
- Results and discussion
- Conclusion
- Reference

Things to look for before reading an article

- Publication date
- Author names
  - Previous and newer publications
- Keywords
- Acknowledgements and funding sources

Attention Is All You Need

Ashish Vaswani*
Google Brain
avaswani@google.com

Noam Shazeer*
Google Brain
noam@google.com

Niki Parmar*
Google Research
nikip@google.com

Jakob Uszkoreit*
Google Research
usz@google.com

Llion Jones*
Google Research
llion@google.com

Aidan N. Gomez* [†]
University of Toronto
aidan@cs.toronto.edu

Łukasz Kaiser*
Google Brain
lukaszkaiser@google.com

Illia Polosukhin* [‡]
illia.polosukhin@gmail.com

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Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., ... & Polosukhin, I. (2017). Attention is all you need. *Advances in neural information processing systems*, *30*.

https://arxiv.org/pdf/1706.03762.pdf

Getting the big picture: First reading

- Read the abstract
- Read the introduction
  - What is the research question?
  - What is the method?
  - What had been done? How is it different from other work?
- Look at figures and results
- Write on the article!
- Tip: keep track of terms you don't understand

Second reading

- Reread the introduction

- Skim methods

- Read results and discussion
  - Does the figures make sense now?

- Write your understanding and questions?

- Write on the article!

Understanding the article: Repeat

- Trying to find answers.
- Reread the article (until you get what you want)
- Check references for parts you don't understand
- Reread the abstract
  - Does your understanding match the abstract?
- Note down important points. This might come in handy when you write you paper/thesis!

Evaluating the article

- Does the method make sense?
  - What are the limitations that the authors mention?
  - Are there other limitations?
  - Can it be used in other situations?
- Are the experiments legitimate?
  - The sample size is big enough?
  - What kind of dataset is used? How big?
  - The evaluation criterion is sound?
- Have these results been reproduced?
  - Look for articles that cite this paper

ML paper checklist

- What is being done?
- How is it being done?
  - How is it different from previous work
- What is the dataset?
  - Nature of dataset
  - How many training/testing samples? How many classes/vocab size?
- Evaluation metric
  - What are the baselines?
- Practicality
  - Prone to parameter tuning?
  - Computing resource / Runtime (training and testing)