

# How to write an academic paper?

Release Engineering for Machine Learning Applications  
(REMLA, CS4295)



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# Please Watch

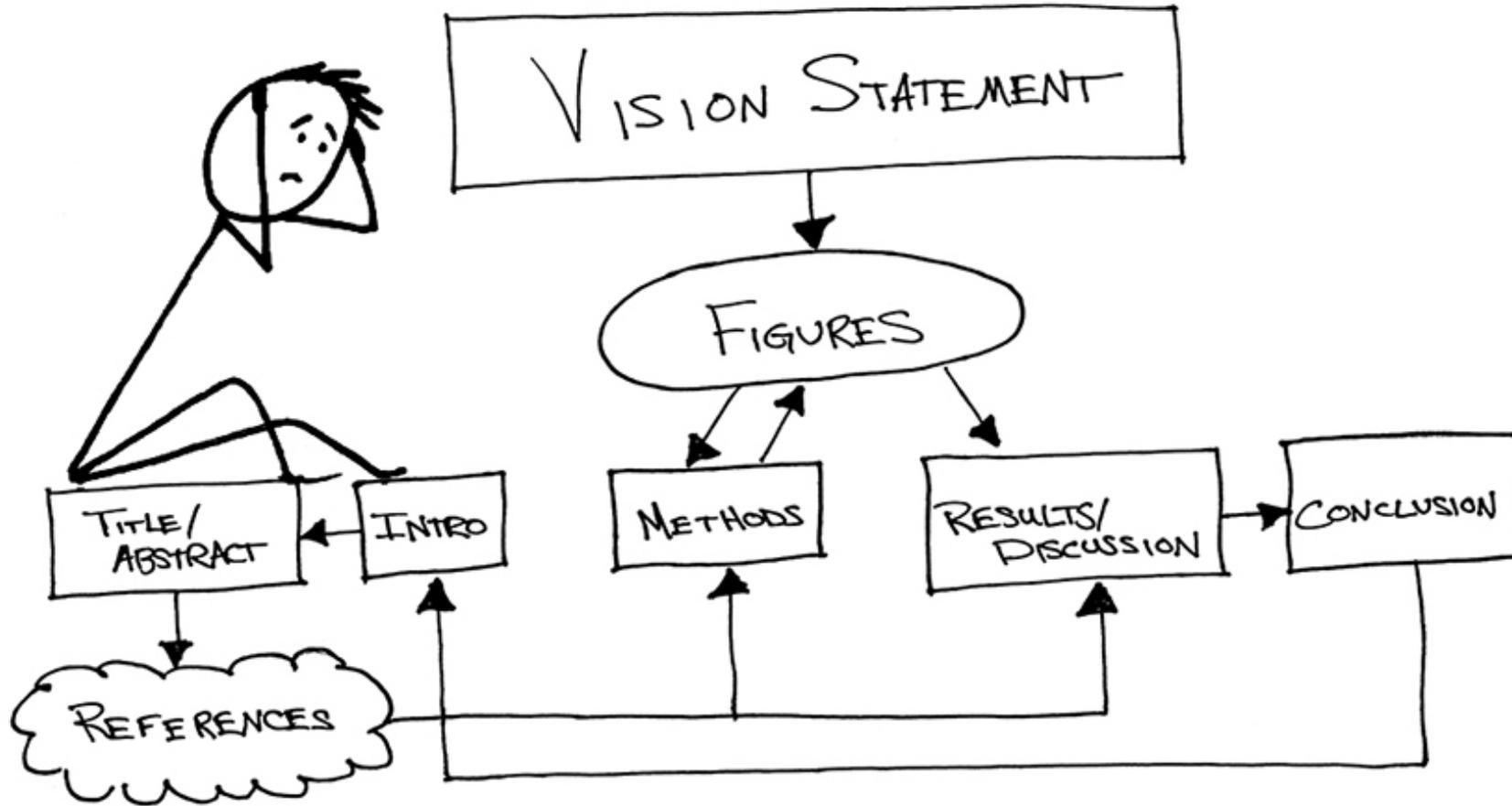


Start with why – how great leaders inspire action | Simon Sinek | TEDxPugetSound

[https://www.youtube.com/watch?v=u4ZoJKF\\_VuA](https://www.youtube.com/watch?v=u4ZoJKF_VuA)

**What has this to do with papers?**

# 10 Simple Steps to Writing a Scientific Paper



# 1. Write a vision statement

- Key message?
- You will come back to this message over and over
- Defines scope
- Clarify target, because this affects the structure

## 2. Don't start at the beginning

- Counter-intuitive right?
- Results often dictate the narrative
- Story *will* be different in the end

# 3. Storyboard the Figures

- Results, even if only expected ones, form backbone
- Figures should be inspiring, clarifying
- Think about the “story” that you want to tell
- Readers might not be completely into your topic, make sure that you pick them up
- A paper is not per se interesting, writing is important!

# 4. Write the Methods Section

- Easiest and most important section
- Just describe what you plan to do (in detail)
- Inappropriate methods can be attacked easily
- Often easiest to mimic methodology of similar studies
- Do not reinvent the wheel, new methods need to be explained, evaluated, compared!

# 5. Write Results and Discussion

- This is the core part of your research
- Describe figures
- Be specific, base statements on concrete results
- Help reader to understand your argumentation
- Separate observation from interpretation

# 6. Write Conclusion

- Summarize your work
- Identify the key contributions
- Reflect back on your vision
- Formulate take-home-messages and actionable insights

# 7. Write Introduction

- Finally, write introduction.

# 8. Assemble References

- Obviously, references are important from the start and motivate your research
- However, reducing it to the key publications can be done at the end
- Briefly summarize paper
- Emphasize relation to your work

# 9. Write the Abstract

- “Elevator pitch” for your research
- Keep it short
- Focus on Why, How, What.

# 10. The Title Comes Last

- Should capture the essence of your paper

# Recommended Structure

# Adopt a Template

- Use the ACM (Latex) Template
- Minimal Example:
  - <https://www.overleaf.com/read/zsdrgrzgncnb>
  - <https://github.com/proksch/template-report>

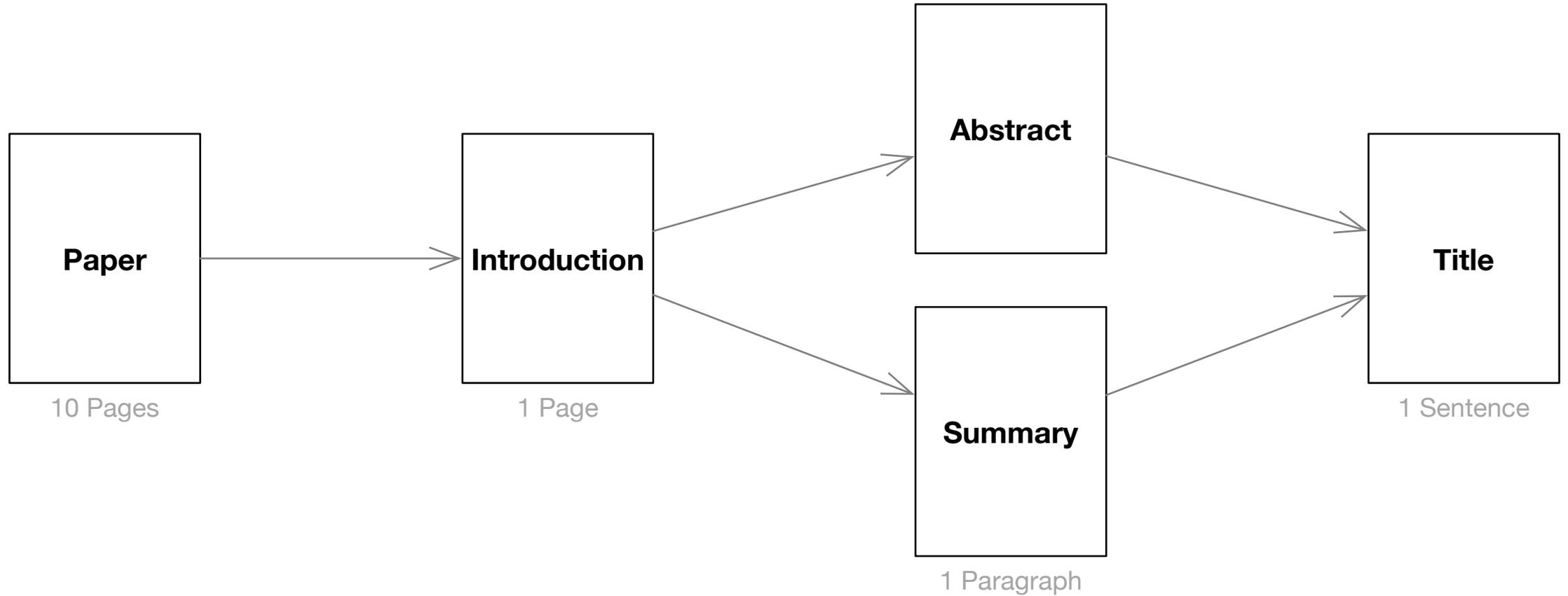
# Recommended Structure

- Abstract (1 paragraph)
- Introduction (1p, polish this!)
- Related work
- Your approach
- Evaluation / Experiments
- Discussion
- Summary (1 paragraphs)

# Abstract / Intro / Summary

- Why is this work necessary?
  - What is the context?
  - What is the problem or limitation of state-of-the-art?
- How do you approach it?
  - Methodology
  - Research questions
- What are your results?

# Summarize on Different Levels



# Related Work

- Work that suffer from the same problem
- Works that solve the same problem
- Works that inspired your solution

# Your approach

- What did you do to save the world?

# Evaluation

- Clearly define experiment
- Describe outcomes, figures / tables
- Introduce findings and observations  
(no interpretation yet)

# Discussion

- Consolidate findings, interpret
- What is the take home message? Actionable insight?
- Relate to previous work
- Introduce ideas for future work that is enabled/motivated by your results
- Limitations
- Threats to validity

# Conclusion

# After this lecture, you should..

- know the concept of communicating “from the inside out”, according to the theory of the golden circles
- have a concrete starting point for how to approach the essay writing process
- know about the expected structure for your essay