

How to Write a Computer Vision Paper

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Why Paper Quality is So Important

- Papers are usually the only product of academic research
 - Value of project is limited by quality of paper
 - Start writing on day 1, spend 10-20% of total project time on the paper
 - Write and rewrite

Goals of a Paper

1. Convince reader that work is original, worthwhile, and clever.
2. Describe the what and the **why** of the approach.
3. Support the main new ideas with experimental results.

Introduction

- What's the big story?
 - Why is the problem important?
 - Why is the problem hard?
 - What is your main contribution?
 - What is your approach?
 - What is significant/worthy about your contribution and approach?
 - How does your work fit into the broader picture?

Tips for Introduction

1. “We are the first to ...”
2. Don't just state relevant work. Use it to frame your contributions.
 - Bad: “Many people have done work on problem X [1,2,3,4,5,6].”
 - Good: Many have taken approach Y to problem X (e.g., [1,2]). This approach is inadequate because Q. Our approach deals with Q.

Describing the Algorithm

- Provide intuition along with mechanism and details
- Refer details to citations where possible
- Connect each part to main story

Experiments

- Make it clear how experimental results support claimed contributions
- If you're doing better than best published, why?
- If you're not, why? Is it really evidence against your main idea?

Discussion

- Restate contributions
- Include future work only if it is broad and insightful
- End on an optimistic note

Give a Reason to Accept

Make originality, suitability, and impact of contribution clear.

Write Defensively

Many reviewers are looking for a reason to reject.
Don't give them one.

Difficult Reviewers

- Don't care about your area – make them!
- Don't understand the difficulty of the problem – talk about how hard it is, how any existing approaches are insufficient
- Aren't able to grasp the point of your paper – make it crisp and clear
- Are critical of your experiments – make sure that your experiments clearly support your main contributions
- Balance intuition and technical detail

Rebuttal

- Don't
 - Criticize the reviewers
 - Argue
 - Make excuses
- Do
 - Thank the reviewers
 - Figure out what the root problems were
 - Directly address any concerns
 - Be as brief as possible

Summary

- Think about the writing process all through the research
- Write a story, not a procedure
- Put yourself in the reviewer's shoes