Writing Research Papers

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These slides are a summary of "How to write a great research paper" by Simon Peyton Jones

Overview

- Motivation
- Structure

Motivation

- Why or why not write research papers?
  - Convey your ideas
  - Have an impact
  - Impress others

- Any other ideas …?

How do we convey our idea?

- Have a clear goal in mind

- Present the problem
  - ◦ Is it interesting and unsolved?

- Present the idea
  - ◦ Details and Data

- How does the idea compare to other's approaches?

Structure

- Title
- Abstract (4 sentences)
- Introduction (1 page)
- The problem (1 page)
- My idea (2 pages)
- The details (5 pages)
- Related work (1-2 pages)
- Conclusions and future work (0.5 pages)

Order and Importance

- In what order would you write the paper
  - Which sections first?
  - Difficulty?

- Importance
  - Which section is most important?

Abstract

- State the problem
- Say what your solution achieves
- Say what follows from your solution

Introduction

- Describe the problem
  - Examples may help

- State your contributions
  - Can use bullet form
  - Gets reader interested to read on

- Be Clear!

Related Work

- Not yet

- Reader doesn't even know the problem

- Related work can make it more difficult for the reader to get to your idea

Problem

- Describe the problem

- Tell us why it is interesting

The Idea

- The objective should be clear

- Intuition behind the idea is primary

- You should present the high level concept before the details

- Take the shortest most direct route to main idea

Details

- Provide evidence to each claim made in the introduction

- Examples of evidence
  - Analysis
  - Theorems
  - Measurements
  - Case studies

Related Work

- Read the papers you cite

- Know both the important and current work in your field

- Failing to give credit to others can be the death of your paper

- Investigation of related work should be done prior to writing the paper

Conclusion

- Be brief
  - Like this slide

- Just a summary

- Future work

The process

- Start early
  - Papers are like wine: they need time to mature

- Collaborate
  - Have both experts and non-experts review your paper