Research Methods in computer science
Spring 2018

Lecture 5

Omprakash Gnawali
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Agenda

HW2 Live Grading
Research Paper Anatomy and Types
Assignment
Anatomy of a Research Paper

Abstract
Introduction
Related Work
Design and Implementation
Evaluation
Conclusion
Introduction

What is the problem?

Why is it interesting and important?

Why is it hard? (E.g., why do naive approaches fail?)

Why hasn't it been solved before? (Or, what's wrong with previous proposed solutions? How does mine differ?)

What are the key components of my approach and results? Also include any specific limitations.

Summary of results and contributions.
Related Work

You want to give a sense of the old and new work in this area.

Where to look for these?

Organized is better than not organized
The Body of the paper

Depending on the area of work may describe the proposed algorithm, proofs, systems, implementations
Evaluation

Description of experiments and metrics
Results of experiments
Implications of those results

More applicable to the applied areas of computer science.
Conclusions

Not the same as abstract
Short summary of what you did in the project and the implications of the results
Can include lessons learnt and future directions
How do the answers map to these questions to the different parts of a paper?
Types of Papers (mechanical)

Technical Reports
  Project description
  Research paper
Conference
Journal
Magazine

Find out what type your group and community writes.
Which papers are more important?

Conference
Journal
Magazine

What makes a paper more important than others?
Types of Papers (purpose)

Research Paper
Survey Paper
Tutorial
Technical Report
- E.g., NIST, Other Orgs
White Paper
Vision Paper
Challenge Paper
Citation Format

There is no standard citation format
Different communities
   APA, Chicago, .................
Different conferences/journals
   ACM, IEEE, ........

Learn how to use tools
   BibTex
   Online Services (e.g., Mendeley)
      Demo: Google Scholar, IEEE, ACM
   Word
Citation

Clean! Clean! Clean!
(esp. for websites, links, datasheets)

Consistency! Consistency! Consistency!
Examples
Citations

Can take a long time to format citations.

Is it worth it?
HW3 – Related Work

List papers related to your research.
Write related work
  At least one visualization
  Appropriate organization
Improve related work
Formatted References