

Research Methods in computer science

Spring 2017

Lecture 3

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Agenda

Research Topics

Research Paper Anatomy

Assignment

How to Find a Topic?

Read, read, read, discuss, go to talks

Listen to your advisor: sometimes you may not have a choice, but you can still bring small ideas

Lets say you are convinced you found a topic. You are excited

How to know if we should pursue the topic?

Why do (PhD) research?

Research Formulation

What are you trying to do? Articulate your objectives using absolutely no jargon.

How is it done today, and what are the limits of current practice?

What's new in your approach and why do you think it will be successful?

Who cares?

Research Formulation

If you're successful, what difference will it make?

What are the risks and the payoffs?

How much will it cost?

How long will it take?

What are the midterm and final "exams" to check for success?

Live comments on HW1 submissions

Anatomy of a Research Paper

Abstract

Introduction

Related Work

Design and Implementation

Evaluation

Conclusion

Some of the contents in the next few slides from Jennifer Widom's notes on Writing Technical Papers.

Abstract

Summary of motivation, state of the art, your algorithm or system, and results each in 1-3 sentences.

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.

HW2 - Research Formulation

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