

# Research Methods in computer science

Fall 2021

Lecture 4

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# Agenda

Research Topic Evaluation

HW2

# 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?

# Competition / State-of-the-art

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

How to find these projects/products/papers?

# Case Study

Lets try to answer the questions for this project

**Feasibility of LoRa for Smart Home Indoor Localization**

<http://www2.cs.uh.edu/~gnawali/papers/lorasmarthome-as21-abstract.html>

# Other Approaches

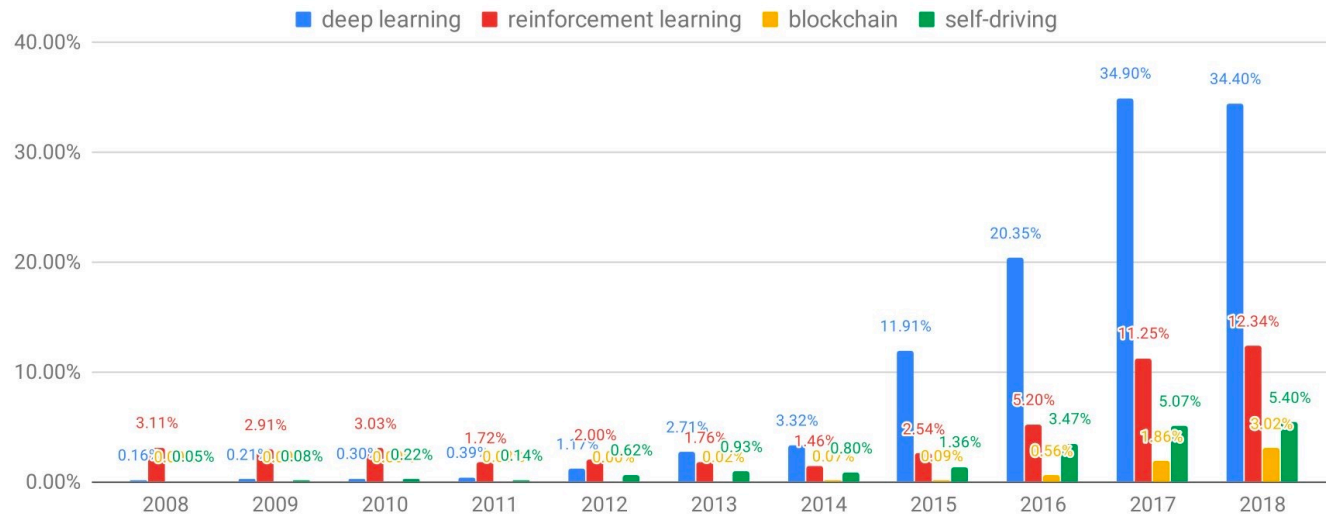
Random

Top trends and lists

Interestingness

# CMU School of Computer Science

## Grad School Applications Keywords



Andy Pavlo [twitter]



# Parallels to Products

Research can be thought of as a Product

Product Viability Evaluation

Companies do this all the time

Lets look at some examples

# Viability of Product Idea

1. What is the potential market size or demand?
2. Who are your competitors?
3. Is it a trend, fad, flat or growing market?
5. Who are your target customers?
6. What is your potential selling price?

<https://www.shopify.com/blog/13640265-the-16-step-guide-to-evaluating-the-viability-of-any-product-idea>

# Research vs Startups

What should you work on? Are you working on the right problem?

MVP.

Usually resource constrained and must prioritize.

Small team.

Selling process.

Marketing.

(Thanks to Guo)

# Research Papers

Identifying papers to read

We asked you to find papers you need to read in your area of research.

Understanding what papers look like

Anatomy

# Research Papers

Understanding what papers look like

# Anatomy of a Research Paper

Abstract

Introduction

Related Work

Design and Implementation

Evaluation

Conclusion

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