

Research Methods in computer science

Spring 2026

Lecture 4

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Agenda

Research Topic/Idea Evaluation

HW2

Recap

How to find or generate ideas?

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?

Group Exercise

Pick a paper

Generate two new ideas

Group Exercise

Pick a paper

Evaluate the idea

Other Approaches

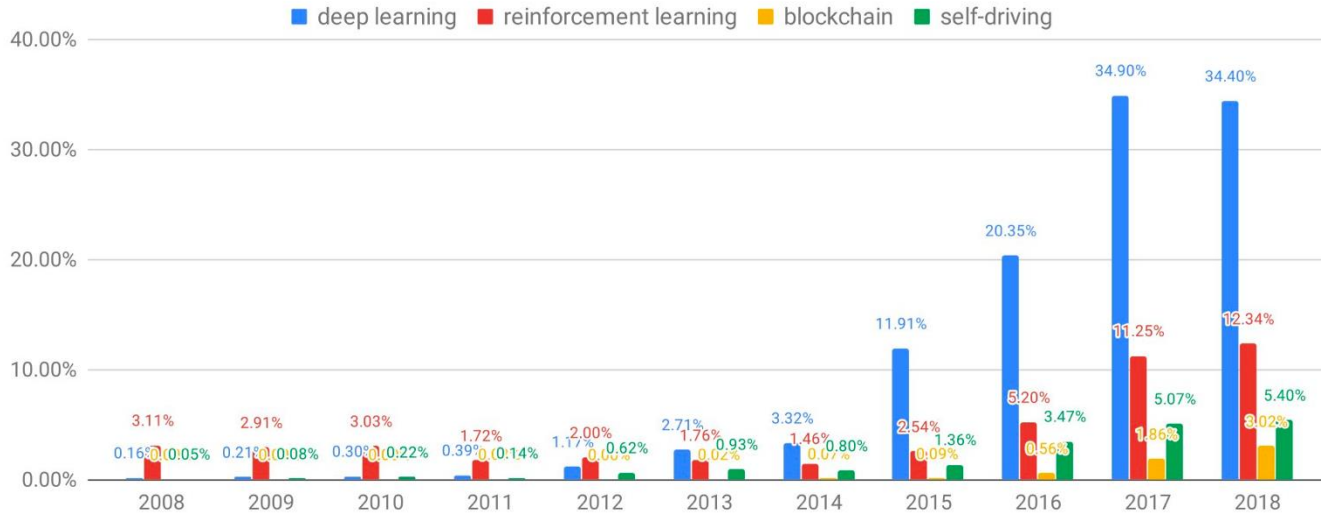
Random

Top trends and lists

Interestingness

CMU School of Computer Science

Grad School Applications Keywords



Andy Pavlo [twitter]

Table D4: Employment of new PhD recipients by specialty

All Employment Locations		Employed in US or Canada			Employed outside US or Canada		
Employment Type	Artificial Intelligence/ Machine Learning	Hardware/ Architecture	High Performance Computing	Human-Computer Interaction	Informatics: Biomedical/ Other Science	Information Systems	Other
Government	10	1	2	2	3	1	6
Industry Non-Research	62	7	7	9	1	18	9
Industry Postdoc	2	0	0	2	0	0	2
Industry Research	229	20	9	31	18	17	28
Industry Type Unknown	15	1	3	2	1	1	2
Non CS/CE/I Dept	0	0	0	0	0	3	1
Other	4	0	0	2	1	0	0
Other CS/CE/I Dept	10	0	1	5	0	0	1
PhD Dept Postdoc	68	5	4	13	19	4	17
PhD Dept Researcher	22	0	0	9	4	2	8
PhD Dept Teaching	16	1	1	6	0	2	2
PhD Dept Tenure Track	44	4	8	20	5	6	12
Self-Employed	8	0	0	1	0	0	2
Unemployed	7	0	0	1	0	0	0
Unknown	48	5	7	16	4	8	56
Grand Total	545	44	42	119	56	62	146

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)

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