

Tuesday, March 1st, 2022

Opportunities in AI

Academia & Industry

Radhika Sethi

Disclaimer

- This is based on my past research experiences, which differ from person to person
- This is a general discussion about the undergraduate industry and academic research
- These are not the only pathways and opportunities in the domain. Be creative and seek out more perspectives
- This talk is heavily based on the importance of networking and wanting to explore various opportunities during undergrad
- Opportunities in ML do not restrict you to vanilla M.

Purpose of this talk

- Introduce you to Machine Learning and Artificial Intelligence
- Various applications of AI in domains
- Is it worth the hype?
- Share my experiences
- How to pursue opportunities in this domain - industry and research internships
- Hope you carry this forward and help others!

My experiences/journey

Radhika Sethi

- January 2020: Presented a paper at Wabtec Corp, Top 9 teams pan India
- July 2020: Data Science intern at Shunya.Inc
- May 2021: Pratibha Eaton Excellence Award for 'Adding AI to Edge Devices'
- May 2021: Research Assistant at University of California Irvine
- June 2021: Software engineering Intern at Providence India
- BTech Project: Research Project at IISER

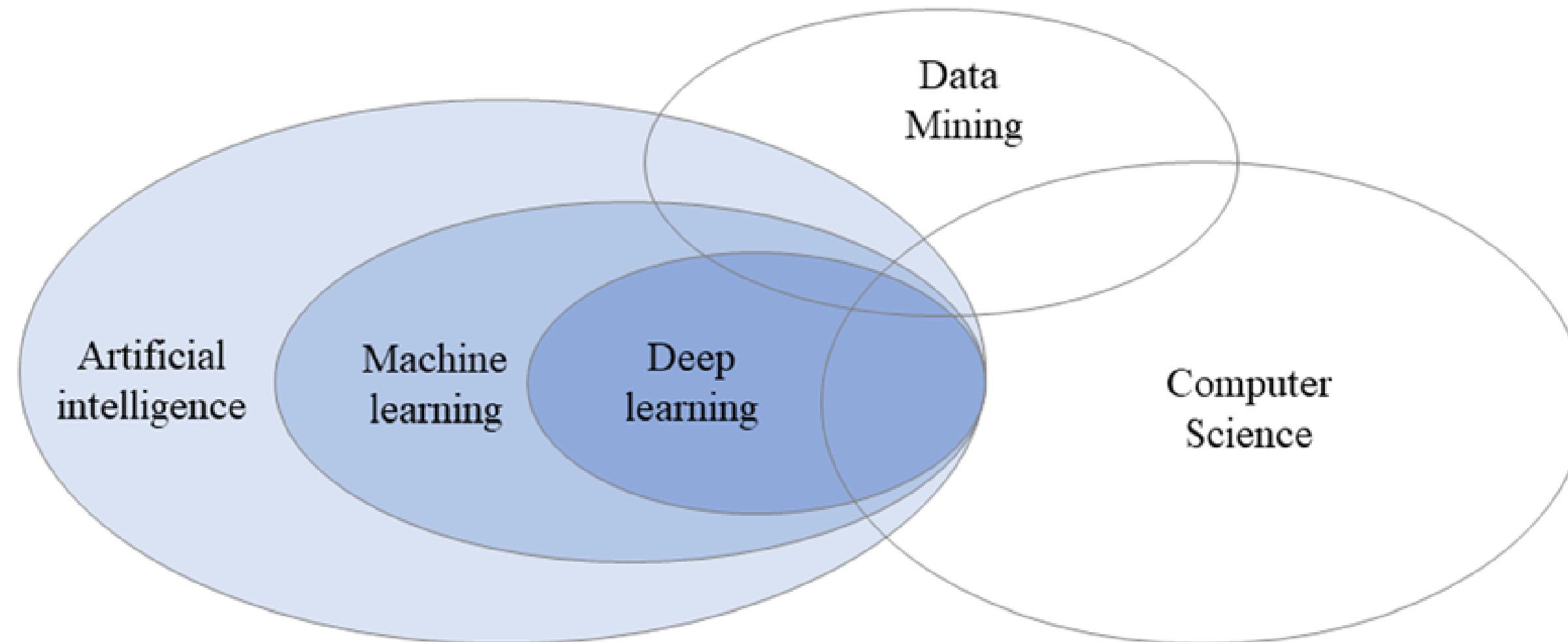
Topic: Identify regions in the genome governing gene regulation

Domain: Computational Biology, Data Science

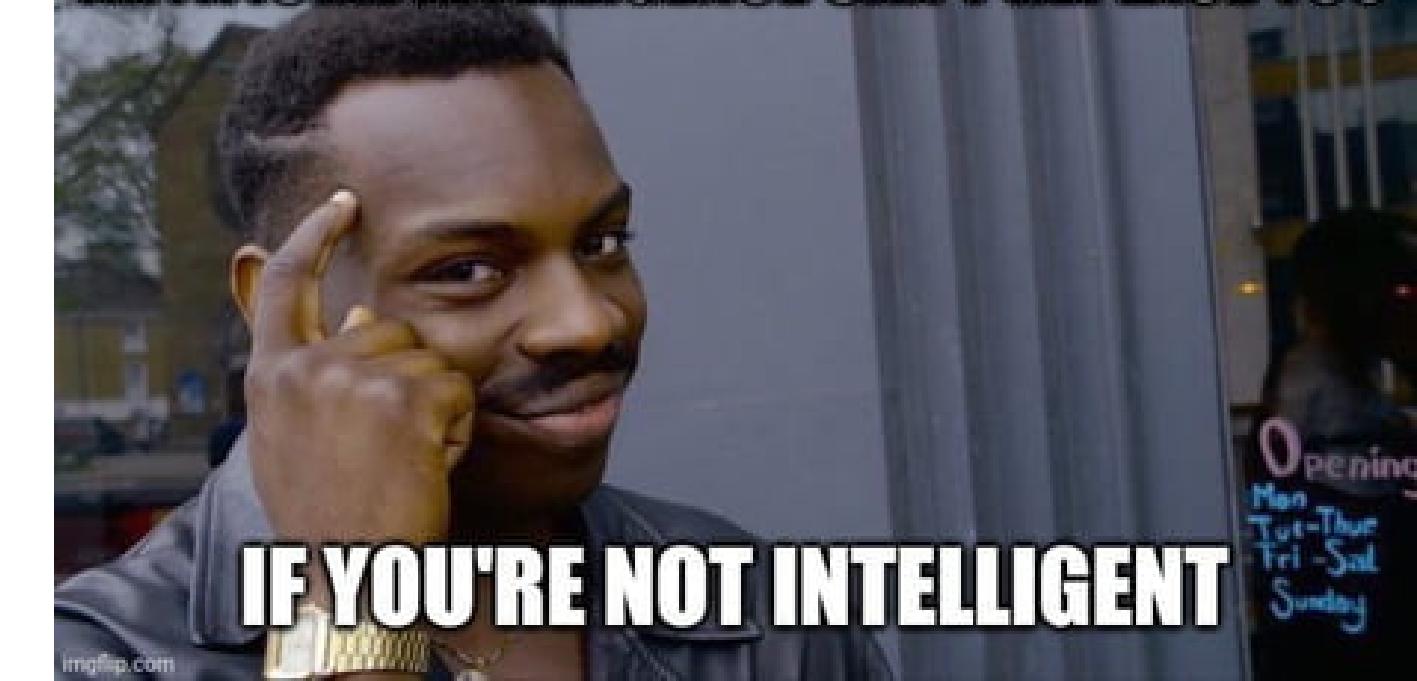
Part I

What is Artificial Intelligence?

What is AI

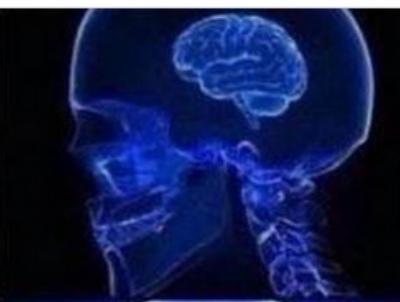


ARTIFICIAL INTELLIGENCE CAN'T REPLACE YOU



What is AI

LEARNING ML,DL
FROM UNIVERSITY



ONLINE COURSES



FROM YOUTUBE



FROM ARTICLES

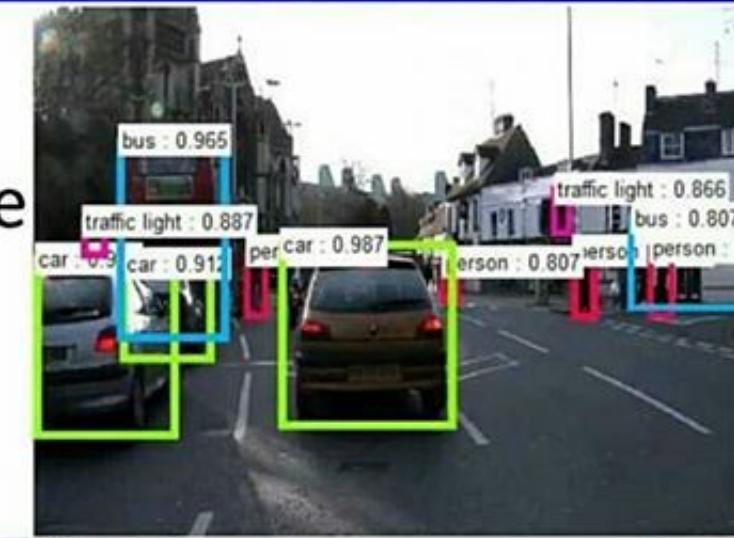


FROM MEMES

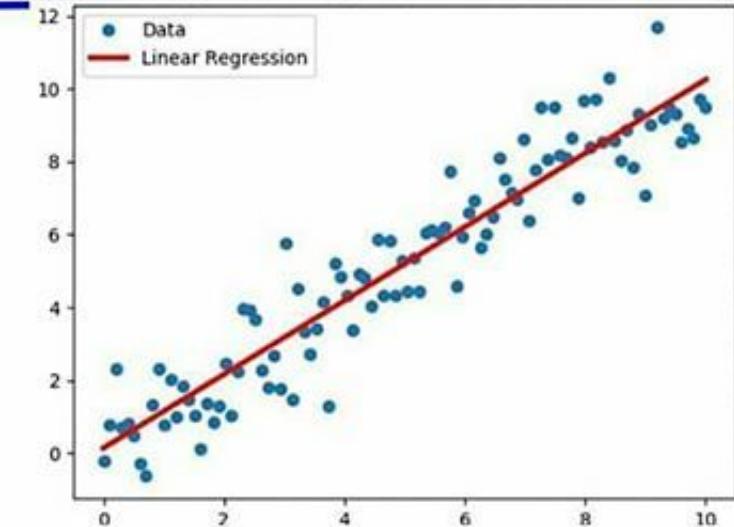


Online Courses

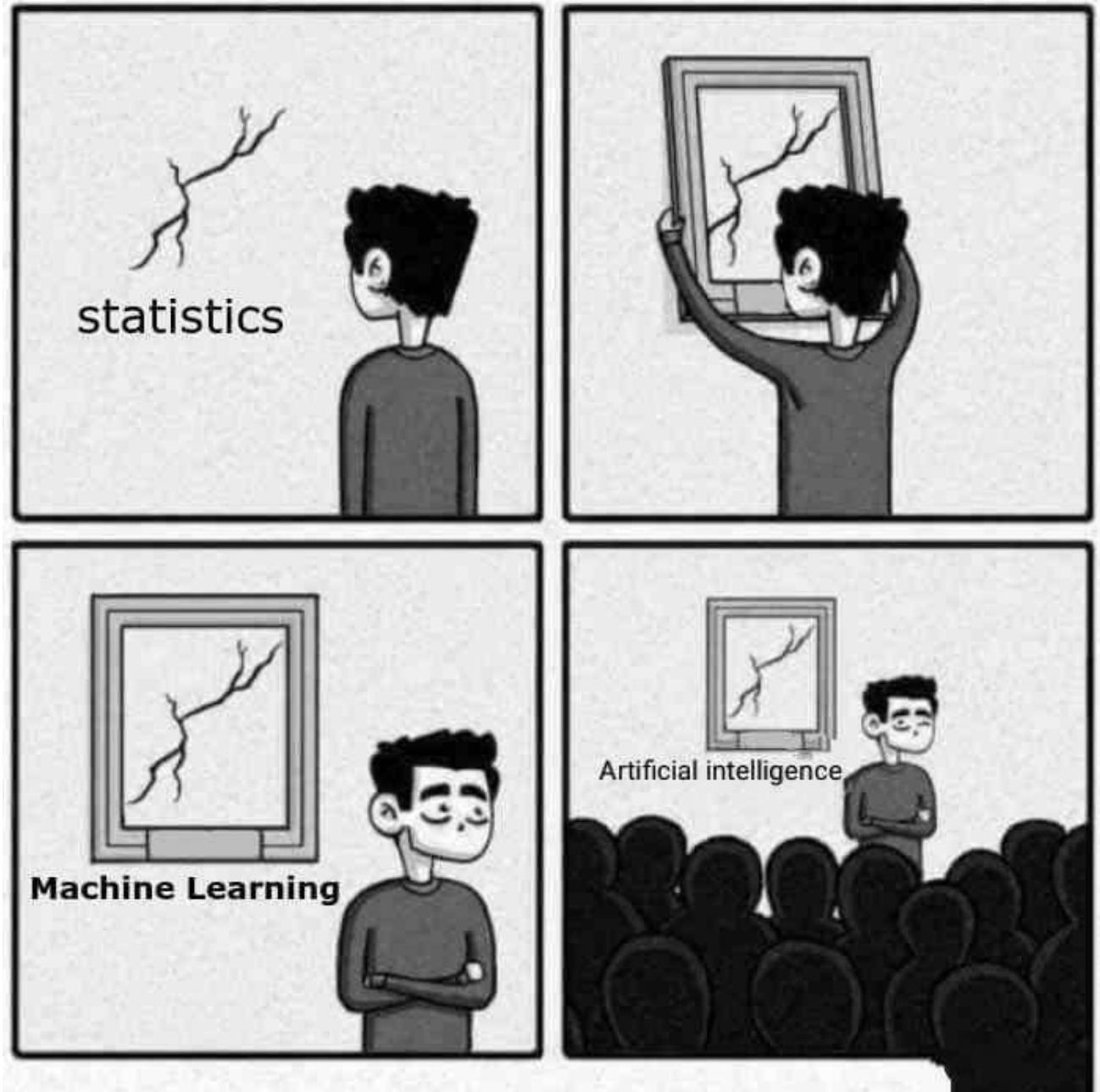
What they promise
you will learn



What you actually
learn



What is AI



Machine Learning != Statistics

“When you’re fundraising, it’s AI. When you’re hiring, it’s ML. When you’re implementing, it’s logistic regression.”

—everyone on Twitter ever

Applications of AI

AR/VR

ROBOTICS

EDUCATION

CYBERSECURITY

SPACE
EXPLORATION

SOCIAL MEDIA

EDUCATION

GAMING

TRAVEL
INDUSTRY

BLOCKCHAIN

HEALTHCARE

AUTONOMOUS
VEHICLES

FINANCE

Is it worth the hype?

Think Instagram and TikTok

According to Instagram, "*the new AI is bringing more user engagement than before*"

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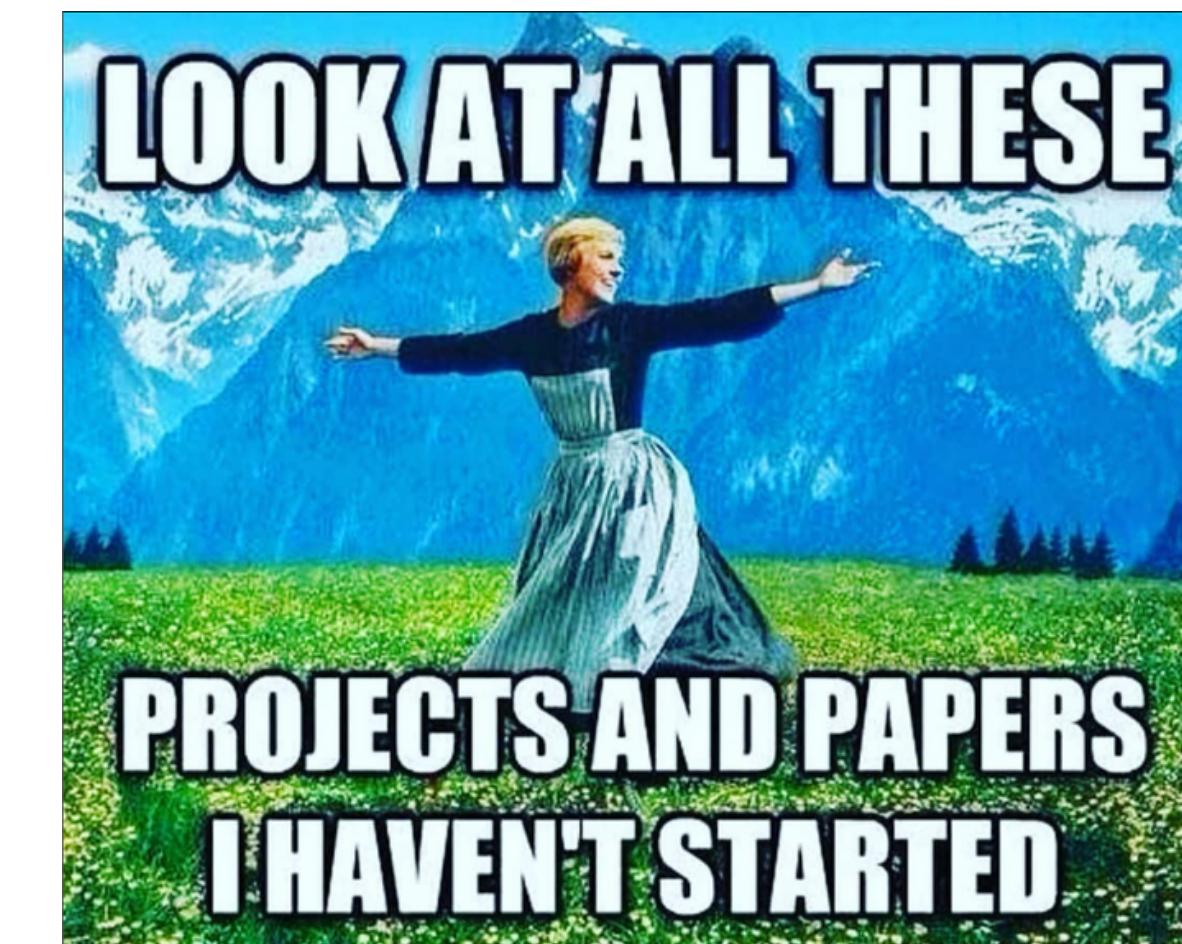
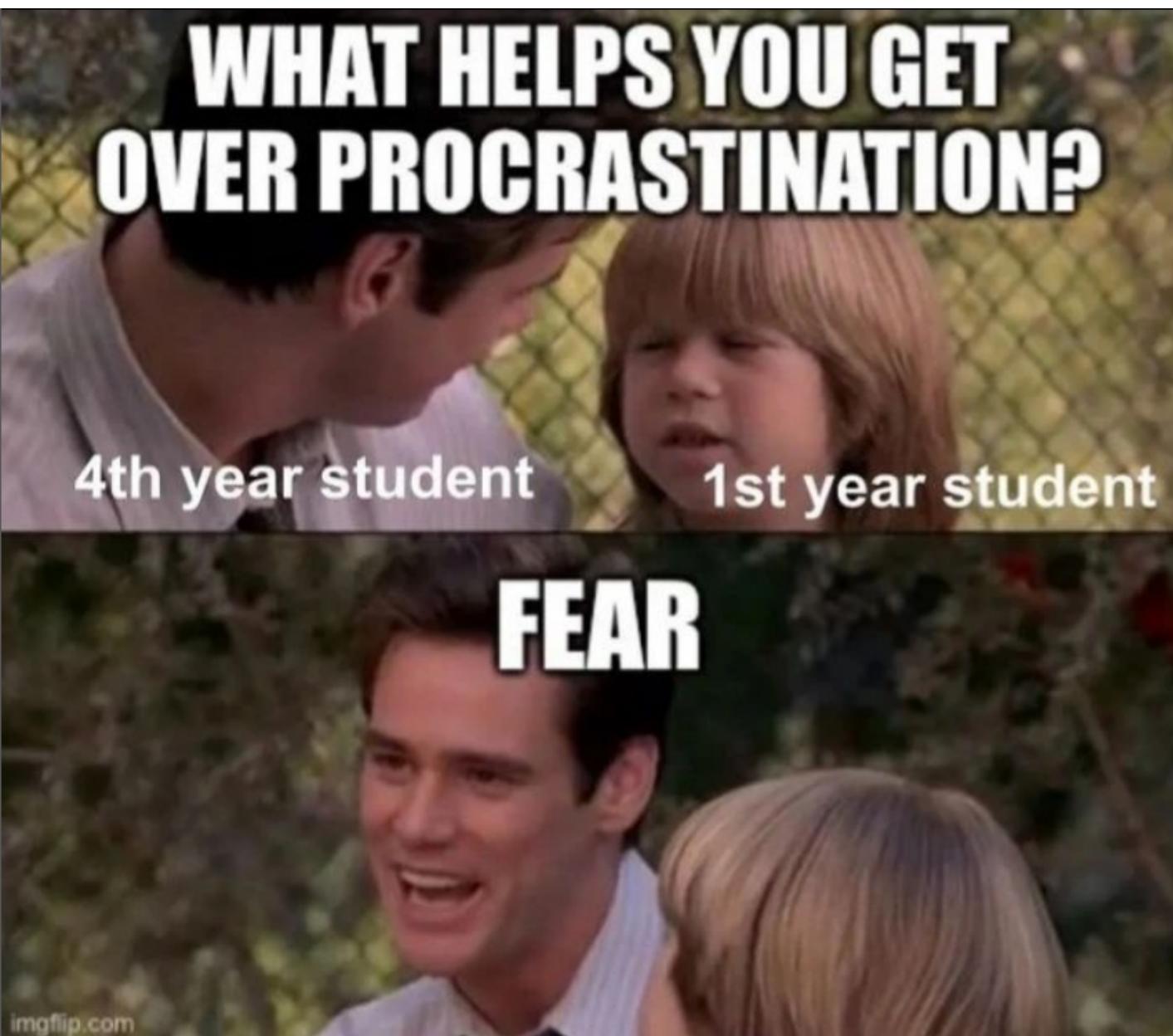
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Word Embeddings

Word embedding is a method used to study the order of words during a caption or message. For example, a word embedding system would learn that hot is more likely to be followed by coffee or water than pigeon or TV. A similar process is used to find two accounts that are likely to interest each other.

For example, if you see animal post, you saved it. You saw a football video and liked it. Then came a science video and you ignored it. Then AI would put an animal post on top, followed by football video, and science post will be eliminated from the tab.

Learning ML - the FOMO



Me vs deadlines

How to figure out if this field is right for me / How to pick a certain domain?

- It's trial and error

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- You might even be interested in fields apart from AI/ML.
- The first step is always to identify what interests you
- Identify the problems in the domain and see if working towards solutions of these problems excites you

Why AI?

- Studying artificial intelligence opens a world of opportunities
- Studying AI now can prepare you for a job as a software engineer
- Industries are evolving, so will the jobs

Part II

How do I build my skill-sets?



Learning ML - The Roadmap

- AICVS holds various technical talks and competitions, currently the Computer Vision Learning Deck, which consists of beginner-level courses by Kaggle, Quizzes, and an introduction to Kaggle Competitions.
- FREE Online Courses/MOOCs - Youtube, Coursera, Udemy, EdX
- Projects projects projects! Don't wait until you complete a course to start a hands-on project. Start project first, course along!



Learning ML - The Roadmap

- Pick up project ideas from Kaggle and upcoming hackathons
- Keep a track of current research - and form project statements around it
- TnP Emails! There are industry competitions coming up every month
- It's not a bad idea to work on previously-implemented problem statements!

Now what?

- Now that you have basic Python and ML knowledge, with a few projects on your GitHub, you should gain real-world experience in the domain
- It can be daunting to know your "interests" but you have 4 years to explore all the domains that even slightly excite you
- Build a CV, a resume, and a cover letter - highlighting your projects and achievements

Part III

What are the different opportunities in this field?

Types of Opportunities

- Industry internships
- Interning at startups
- Management internships
- Research Internships
- Research Fellowships

When is it the best time to apply?

- Now.
- Plan your corporate internship, research, final year project timeline
- Pick up the gaps from the timeline and apply strategically

Research Opportunities in AI

A few renowned research opportunities

- [Mitacs Globalink Research Internship](#)
- Microsoft Research India
- Google Research India
- IBM Research
- Wadhwani AI
- Samsung Research

himahuja/Research-Internships-for-...

List of Research Internships for Undergraduate Students

41

Contributors

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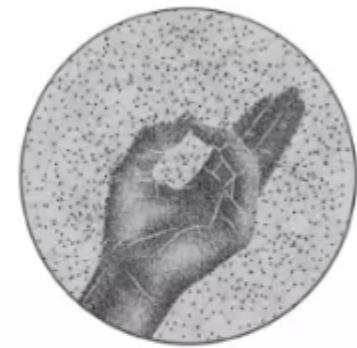
Issues

2k

Stars

499

Forks



himahuja/Research-Internships-for-Undergraduates: List of Research Internships for Undergraduate Students

List of Research Internships for Undergraduate Students - GitHub - himahuja/Research-Internships-for-Undergraduates: List of Research Internships for Undergraduate Students

GitHub

Industry Opportunities in AI

- Twitter India
- Adobe India
- Sony India
- The key is to always be on the lookout for opportunities in the industry. Follow relevant people and hashtags on LinkedIn, subscribe to newsletters that actively update you about openings in companies.
- Be on the lookout for emails from the TnP
- Be active on Twitter for opportunities in startups in AI/ML/NLP/Data Analysis
- angel.co - For startups!
- Industry internship applications start in June and July, till April of the next year

Part IV

Understanding Industry Vs Academia

Industry Vs Academia

Academia

- Research internships: A good way to try your hand at research!
- Masters and Ph.D. program admissions committees value research experience
- Get to dive deeper into a subject and truly understand the domain
- Also, a good topic to talk about during corporate interviews
- Most research internships are not paid

Industry Vs Academia

Academia

- Research experience is valued by the grad school admission committees
- A research-based program is a good idea if you are keen on pursuing research after undergrad
- It is possible to do a direct Ph.D. in the states, but other countries require a master's degree in order to pursue a Ph.D./DPhil
- Apply to fellowships and residency programs!

Industry Vs Academia

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- Having a previous internship experience before campus internship and placement rounds will help you stand out from the crowd, during interview rounds
- Understand the hierarchy and types of roles in an organization - which helps to understand what your interests and goals are, and the work you need to put in to reach such roles.

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Work on your online presence!

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- Read professor web pages to find out if they are actively looking for students or have an upcoming project, and shoot an email.

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- Worked alongside seniors on projects and understood how to write good code. PR reviews have helped me learn.

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- Attended various summer schools and academic conferences (that were free to attend)

Explaining my Experience

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- I learned to write my own neural network architectures and work with high dimensional biological data - without any prior biology knowledge
- IIISER has been a wonderful experience, with a supportive mentor and advisor. You learn really cool facts! For example, Random is not random.

I did not know that generating random numbers are not random, and that they follow a distribution since these are pseudo random numbers. I'm 😅😅😅

some methods exist but mostly by embedded systems or parameter/noise driven.

Though, the real question is, do humans generate number truly random? Or do we just think it's random because we don't know how our brain works. :)

Q 1

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2

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Blog: <https://aicvs.in/RadhikaSethi.html>

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Questions?

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Thank you!

Radhika Sethi

Connect with me [Linkedin](#), [Twitter](#)

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