Ayush Jain

Senior Undergraduate · Electrical Engineering with Minor in Computer Science

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Education

Year	Qualification	Institute	Grade
2018 - 2022	B. Tech, Electrical Engineering	Indian Institute of Technology, Kanpur	9.6 / 10.0
2018	Class XII (CBSE)	Podar International School, Ahmedabad	95%
2016	Class X (CBSE)	Podar International School, Ahmedabad	10 / 10

Publications

DOES SOCIAL PRESSURE DRIVE PERSUASION IN ONLINE FORA? *[Paper]*

Ayush Jain, Shashank Srivastava *2021*

Empirical Methods in Natural Language Processing (EMNLP)

Research Experience

GNN FOR MULTIMODAL EMOTION RECOGNITION | IIT Kanpur

Prof. Ashutosh Modi *July 2021 - Ongoing*

- Worked with a team to develop a Graphical Neural Network that uses **text, audio and vision modalities** together to **predict emotions**
- Worked on the **feature extraction pipeline** of Wave2Vec2 audio based features
- Worked on analysing the **importance of GNN** layers in understanding the context by plotting UMAP reductions of feature outputs
- Worked on performing ablation and error analysis
- Paper under review at **ACL 2022**.

RESEARCH INTERN (NLP) | University of North Carolina at Chapel Hill

Prof. Shashank Srivastava *February 2020 - September 2021*

- **Paper published at EMNLP 2021**
- Worked on the changeMyView sub-reddit dataset to study **group-discussion dynamics**
- Analysed the **role of community intervention** on persuasion by features that model the sentiment changes and the overall stance of the community
- Developed a model that uses community comments and it's interplay with the ongoing conversation and predicted the persuasion output with **80% accuracy**
- Performed **ablation studies** and **counterfactual analysis** that strengthen claims of causality

Experience

SDE INTERN | Microsoft India (R&D) Pvt Ltd

ABAC Special Clouds *May 2021 - July 2021*

- Implemented the API for **Attribute Combination Hash Generation** while handling **collision** and **concurrency** issues
- Implemented the **128-bit Murmur 3 Hashing Algorithm**
- Extended the **PDP Engine** to perform policy checks, also returning missing attributes for the subject
- Implemented an Allowed List Web API that has endpoints to trigger full or partial refresh for the User's Access control list
- Integrated the extended PDP Package with the Allowed List API to perform e2e testing of the User Access control list refresh
- Received a Pre-Placement Offer

Open-Source

SUMMER OF BITCOIN | SOB *July 2021 - September 2021*

- One of the 50 students selected for the program
- **Ranked 1st out of 6000+ candidates** in the coding task
- Contributing to **BTCPayServer**, a Bitcoin payment processor that lets you accept BTC without fees or intermediaries
- Working on adding and improving the **server file storage features** in the server
- Attending workshops organised by Chaincode Labs to learn about the core Bitcoin concepts

Projects

GIBBS SAMPLING FOR BAYESIAN MIXTURE MODELS *India*

CS698X *June 2020*

- Implemented a Gibbs sampler for estimating the posterior distribution of a Gaussian Mixture Model
- Iteratively updated the latent variables to achieve 99.99% accuracy

POS TAGGING USING HMM
SELF PROJECT | ⊙

India
June 2020

- Implemented a POS Tagger on the wall Street corpus using **Hidden Markov Model**
- Applied **Viterbi** Algorithm and attained accuracy of **95%**

CONNECT-4 AI
SELF PROJECT | ⊙

India
June 2020

- Built a two-player Connect-4 game engine using **Python** and **Pygames**
- Used **mini-max** algorithm along with **alpha-beta** pruning to enhance the efficiency of the engine to search for best move upto **six steps** ahead of current state of the game

CONVEX OPTIMIZATION
PROGRAMMING CLUB, IITK | ⊙

Kanpur, India
May 2019 - June 2019

- Learning based Project that dealt with rigorous Linear Algebra and Optimisation Techniques for **Deep-Learning Models**
- Implemented several models including **ADAM, ADAGrad, RMSProp, AMSGrad** etc

Scholastic Achievements

2021	Accepted as one of the 50 candidates for the **Summer of Bitcoin** Program amongst 6000+ participants	India
2020	Got **Academic Excellence Award**, IITK for 2 consecutive years 2018, 2019	Kanpur, India
2018	Secured **All India Rank 637** in the JEE Advanced examination amongst **2.25 lakhs** shortlisted students	India
2018	Secured **All India Rank 535** in the JEE Mains examination amongst **1.2 million** candidates	India

Technical Skills

Programming/Scripting	C,C++, C#, Python, JavaScript, Verilog
Web Development	CSS/HTML, Node.js, Express, ASP.NET, React
Utilities	Pytorch, Git, SQL, Jupyter Notebook, LaTeX, NLP

Relevant Coursework

Multivariable Calculus	Linear Algebra	Probability and Statistics
Fundamentals of Computing *	Data Structures and Algorithms	Algorithms-II
Differential Equations	Computer Organization	Operating Systems
Introduction to Machine Learning *	Topics in Probabilistic Modelling and Inference	

* - Excellent Performance

Positions of Responsibility

MANAGER | WEB DIVISION, ANTARAGNI, IIT KANPUR
July 2019 - Feb 2020

- Developed the Mobile Application for Antaragni using Flutter
- Featured as one of the top 10 trending apps on Play Store in its category, 2K+ downloads, 4.9/5.0 rating
- Real-time notifications for contestants regarding important updates on timing and venue of competitions
- Personalised Antaragni news-feed based on the subscriptions to events and competitions by users

SECRETARY | PROGRAMMING CLUB, IIT KANPUR
July 2019 - April 2020

- Took a Lecture on Express back-end library and explained about setting up a server and using authentication middle-ware

ACADEMIC MENTOR | COUNSELLING SERVICE, IIT KANPUR
July 2019 - April 2020

PHY102: INTRODUCTION TO MECHANICS

- Took multiple doubt clearing sessions, both hall level and institute level and also gave one-on-one tutoring to a few students

STUDENT GUIDE | COUNSELLING SERVICE, IIT KANPUR
July 2019 - April 2020

- A Mentor to the students of freshman year helping them to get accommodated in the campus and guide them whenever they are in need