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]*

Jain, Ayush, and Shashank Srivastava. "Does Social Pressure Drive Persuasion in Online Fora?." Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing. 2021.

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

India
June 2020

SELF PROJECT | ⌂

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

CONNECT-4 AI

India
June 2020

SELF PROJECT | ⌂

- 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

Kanpur, India
May 2019 - June 2019

PROGRAMMING CLUB, IITK | ⌂

- 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 and Services

VOLUNTEER | EMNLP 2021

November 2021

- Assisted the area chair and collaborated with speakers to ensure smooth conduction of paper presentations at EMNLP 2021

MANAGER | WEB DIVISION, ANTARAGNI, IIT KANPUR

July 2019 - February 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 lectures on web frameworks like Django and Express back-end library and explained about setting up web server and using authentication middle-ware for secure access

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