Utkarsh Patel

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Education

May 2023 **Indian Institute of Technology Kharagpur** *Kharagpur, India*
BTech and MTech in Electronics and Electrical Communication Engineering | CGPA 9.47/10
Minor in Computer Science and Engineering

Work Experience

May 2022 – Jul 2022 **Software Engineer Intern** The D. E. Shaw Group *Hyderabad, India*

- Worked in the Front Office R&D Tech division on firm's **core analytical engine** for discretionary strategies
- Proposed and implemented an **end-to-end** feature to support searching, filtering and on-the-fly vectorized computation of complex symbolic expressions over cached time-series data for different instrument attributes
- Created optimized **RESTful APIs** for exposing backend functionality to **Tableau** web data connector, allowing traders to analyze custom time-series in Tableau server

Publications

2023 **Utkarsh Patel**, Animesh Mukherjee, Mainack Mondal. "Dummy Grandpa, do you know anything?": Identifying and Characterizing Ad hominem Fallacy Usage in the Wild.
In *Proceedings of the 17th International AAAI Conference on Weblogs and Social Media (ICWSM '23).*

Research Experience

Feb 2021 – Ongoing **Ad hominem Fallacies in the Wild** | *Guides: Prof. Mainack Mondal and Prof. Animesh Mukherjee*

- Implemented explainable models to detect **ad hominem** fallacies and provide linguistic insight into their triggers
- Achieved state-of-the-art results on sparsely annotated datasets using **SS-GAN** schema applied over **BERT**
- Performed network studies on the users to understand user dynamics in debate portals and social media sites
- Validated our in-the-wild predictions by performing crowdsourced surveys, achieving macro-F1 up to **0.94**

Aug 2020 – Dec 2020 **Detection of Autism Spectrum Disorder** | *Guide: Prof. Debasis Samanta*

- Worked on the **ABIDE** dataset to extract and process resting-state functional MRI data using **nilearn**
- Used correlation-based approach to determine functional connectivity between regions of interest
- Achieved test accuracy of **0.68** and **0.65** using **Support Vector Machines** and **K-Nearest Neighbors**

Achievements

2022 **Department Rank 1** among the Dual Degree (VIPES) students of the Department of E&ECE

2021 Secured **Global Rank 70** among 12,000+ contestants in **Google Kick Start** (Round C)

2021 Qualified for Round 2 of **Facebook Hacker Cup**

Projects

Spring 2022 **Defog: Single Image Defogging by Multiscale Depth Fusion** | *Computer Vision*

- Implemented inhomogeneous **Laplacian–Markov** random field regularized with smoothing and edge-preservation
- Used **max-flow min-cut** algorithm for energy minimization with **alpha-beta swap** for depth map estimation

Winter 2021 **Facebook Scraper** | *Web Scraping*

- Developed a web crawler to scrape posts, comments and replies from public Facebook pages
- Used **selenium** to automate the browsing and **Beautiful Soup** for parsing the page source

Fall 2021 **Jarvis: Chatbot for Customer Support** | *Natural Language Processing*

- Implemented a **Seq2Seq** architecture based chatbot with **Luong** attention mechanism in **PyTorch**
- Trained the model on **Customer Support on Twitter** dataset with **teacher forcing** and **gradient clipping**

Technical Skills

Languages C/C++ (Proficient), Python (Proficient), JavaScript, Bash, SQL

Frameworks Pandas, NumPy, PyTorch, Scikit-learn, TensorFlow, Tableau WDC