Utkarsh Patel

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Education

- **Indian Institute of Technology Kharagpur** — Kharagpur, India
  Bachelor and Master of Technology (Dual Degree); GPA 9.47 / 10 — *Jul 2018 - May 2023 (Expected)*
  Major: Electronics & Electrical Communication Engineering; Minor: Computer Science
- **Shah Faiz Public School** — Ghazipur, India
  All India Senior School Certificate Examination (CBSE); Marks 94.8% — *May 2017*
- **Shah Faiz Public School** — Ghazipur, India
  All India Secondary School Examination (CBSE); GPA 10 / 10 — *May 2015*

Achievements

- **Academic**
  - Holding **Department Rank 1** among the dual degree students of E&ECE department
  - **Changed Department** to E&ECE by acquiring **9.69 CGPA** in the first year
- **Google Coding Competitions**
  - **Kick Start 2021 Round C:** Secured **Global Rank 70** among around 12.2k contestants
  - **Kick Start 2021 Round A:** Secured **Global Rank 814** among around 20k contestants

Key Projects

- **Logical Fallacy Detection to Defend Against Online Hate Speech** — *Feb 2021 — Present*
  Guide — Prof. Mainack Mondal and Prof. Animesh Mukherjee — *Natural Language Processing*
  - Created a Corpus of posts related to Politics from online debate portals and social media using Web Scraping libraries like urllib, scrapy, BeautifulSoup, etc.
  - Implemented a Semi-Supervised GAN based learning for robust identification of hate speech
  - Used BERT as the Discriminator of the GAN; our model outperforms the classical BERT when both are fine-tuned on a small batch (less than 20%) of labeled examples
- **Targeted Aspect-based Sentiment Analysis** — *Dec 2020 — Jan 2021*
  Self Project — *Natural Language Processing*
  - Performed aspect-based sentiment analysis by transforming the task into sentence-pair classification task via constructing auxiliary sentences from target-aspect pairs
  - Used pre-trained BERT model and fine-tuned it on SentiHood data set
  - Achieved aspect F1-score of 0.90 and sentiment AUC of 0.986
- **Identification of Autism Spectrum Disorder** — *Aug 2020 — Dec 2020*
  Guide — Prof. Debasis Samanta — *Machine Learning*
  - Worked on the ABIDE data set to extract and process resting state functional MRI data
  - Used correlation-based approach to determine functional connectivity between ROIs
  - Implemented various machine learning models to classify subjects as autism (ASD) patients and typically developing (TD) participants; achieved test accuracy of 0.68 and 0.65 using SVM and KNN classifier respectively

Technical Skills

- **Programming Languages**: C++, Python
- **Libraries / Frameworks**: TensorFlow, Keras, PyTorch, Scikit-learn, Pandas, LIME, BeautifulSoup, NetworkX
- **Softwares / Platform**: MATLAB, Git, LaTeX

Relevant Coursework

- **Completed with Laboratory Component**: Algorithms, Programming and Data Structures, Digital Signal Processing, Communication Systems
- **Completed**: Machine Learning, Probability and Stochastic Processes, Matrix Algebra, Speech Processing, Control Theory