

## Education

- May 2023 **Indian Institute of Technology Kharagpur** *Kharagpur, India*  
Dual Degree in Electronics and Electrical Communication Engineering | CGPA 9.47/10  
Minor in Computer Science and Engineering
- May 2017 **Shah Faiz Public School** *Ghazipur, India*  
All India Senior School Certificate Examination | Aggregate 94.8%
- May 2015 **Shah Faiz Public School** *Ghazipur, India*  
All India Secondary School Examination | CGPA 10/10

## Research Projects

- Feb 2021 – **Hate Speech Detection** | *Guides: Prof. Mainack Mondal and Prof. Animesh Mukherjee*  
Ongoing
  - Achieved **5.1%** absolute improvement in F1-score by fine-tuning **BERT** on **CMV** dataset against baselines
  - Projected attention weights to the original texts as heat maps to identify the keywords triggering hate
  - Created a corpus of 10,000+ politics-related posts containing 114,000+ comments using **Beautiful Soup**
  - Used **NetworkX** to build support and dispute networks of 7,000+ users to identify key users and communities
- Aug 2020 – **Detection of Autism Spectrum Disorder** | *Guide: Prof. Debasis Samanta*  
Dec 2020
  - 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
  - Implemented various ML algorithms to classify subjects as autistic or not from the connectivity matrices
  - Achieved test accuracy of **0.68** and **0.65** using **Support Vector Machines** and **K-Nearest Neighbors**

## Achievements

- 2021 **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**
- 2019 Secured **department change** to E&ECE by acquiring **9.69** CGPA at the end of the first year

## Key Projects

- Spring 2021 **Create-Debate Scraper** | *Web Scraping*
  - Developed a web crawler to scrape all the debates from CreateDebate.com using **Beautiful Soup**
  - Used **NetworkX** to construct graphs representing the nested structure of the comments in the threads
  - Incorporated features like sort-by, type, topic, time and state of the debate to narrow down the search space
- Winter 2020 **Targeted Aspect-based Sentiment Analysis** | *Natural Language Processing*
  - Transformed the task to sentence-pair classification by constructing auxiliary sentences from target-aspect pairs
  - Used Question Answering and Natural Language Inference methodologies for constructing auxiliary sentences
  - Fine-tuned **BERT** on **SentiHood** dataset, achieved aspect F1-score 0.90 and sentiment AUC **0.98**
- Fall 2020 **Learning Algorithms** | *Machine Learning*
  - Implemented **Decision Trees** to predict the increase in Covid-19 cases, used **RE-pruning** to prevent over-fitting
  - Implemented **Naive Bayes** classifier to predict patient length-of-stay in ICUs, used **PCA** for dimension reduction
  - Used **SVM** and **MLP** classifier to predict the biodegradability of chemical from its molecular description

## Skills

- Languages C/C++, Python, MATLAB
- Tools Git, Linux, TensorFlow, PyTorch, Pandas, Scikit-learn, NumPy

## Relevant Coursework

Algorithms, Programming and Data Structures, Machine Learning, Natural Language Processing, Expert Systems, Image Processing, Probability and Stochastic Processes, Matrix Algebra