# Utkarsh Patel

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## Interests

*Natural Language Processing · Machine Learning · Algorithms · Graph Theory*

## Education

- **Indian Institute of Technology (IIT), Kharagpur** — *GPA* — 9.47 / 10.0
  *Candidate for Bachelor and Master of Technology (Dual Degree)* — *Jul 2018 - Present*
  - **Major**: Electronics and Electrical Communication Engineering
  - **Minor**: Computer Science and Engineering
- **Shah Faiz Public School, Ghazipur**
  *Central Board of Secondary Education*
  - **Higher Secondary**: 94.8% — May 2017
  - **Secondary**: CGPA 10 / 10 — May 2015

## Projects

- **Targeted Aspect-based Sentiment Analysis** — *Prof. Animesh Mukherjee*
  *Natural Language Processing* — *Winter '20*
  - 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** — *Prof. Debasis Samanta*
  *Machine Learning* — *Autumn '20*
  - 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 classification algorithms 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.

- **Machine Learning** — *Prof. Jayanta Mukhopadhyay*
  *CS60050 — Machine Learning Term Project* — *Autumn '20*
  - Implemented Regression Decision Trees for predicting percentage increase in Covid-19 cases worldwide.
  - Implemented Naive Bayes classifier for estimating patients' stay in a hospital.
  - Implemented SVM and MLP classifier for predicting biodegradability of chemicals from their molecular description.

## Key Skills

- **Programming Languages**: C++, Python, Java, Scala
- **Libraries / Frameworks**: PyTorch, TensorFlow, Keras, Scikit-learn, Pandas
- **Machine Learning / Data Analysis**: Deep learning, including CNNs and RNNs; Machine learning, including SVM, KNN, Fuzzy Rules, Decision Trees and Bayes
- **Softwares / Platform**: Apache Hadoop, Apache Spark, MATLAB, Git, LaTeX

## Relevant Coursework

- **Computer Science**:
  Machine Learning; Algorithms (+ lab); Programming and Data Structures (+ lab)
- **Electronics and Communication Engineering**:
  Digital Electronics (+ lab); Analog Communication (+ lab); RF & Microwave (+ lab); Digital Speech Processing; Analog Electronics (+ lab); Control Theory; Signals & Systems; Semiconductor Devices (+ lab)
- **Mathematics**:
  Probability and Stochastic Processes; Matrix Algebra
- **Online Courses**:
  Deep Learning Specialization; Graph Theory

## Scholastic Achievements

- 2020: Holding **Department rank 1** among 53 dual degree students at the end of $4^{\text{th}}$ semester.
- 2017: Secured **$2^{\text{nd}}$ position** in the district in All India Senior School Certificate Examination.