# Sajal Goyal

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Major: Chemical Engineering, Minor: Industrial and Management Engineering

sajalgoyal113.github.io


## Educational Qualifications

| Year | Degree/Certificate | Institute | CGPA/% |
|---|---|---|---|
| 2022 | B.Tech | Indian Institute of Technology Kanpur | 8.25/10 |
| 2018 | CBSE – XII | Kautilya Sr. Sec. School, Kota | 89.8% |
| 2016 | ICSE – X | St. Peter's College, Agra | 95.3% |

## Honors and Achievements

- Secured **1st** position in the **FinFest Pan IIT Equity Portfolio Management** competition 2021 with **1000+** participants
- Secured **1st** position in **Stock the Stock** competition 2020 by Entrepreneurship Cell, IIT Kanpur with **150+** participants
- Amongst **Top 3** in Round 1 and Overall **Top 30** in **Data Science Hackathon** organised by **Trell** with **2000+** participants
- Secured **All India Rank 1981** in **JEE Advanced 2018** amongst 160,000 shortlisted candidates

## Professional Experience

**OLA | Data Science Intern** *Sep'21 - Dec'21*

| | |
|---|---|
| **Objective** | • Build **end-to-end workflow** to determine **customer satisfaction** for conversations in **10** Indian languages<br>• Implement machine learning models for **Transcription, Translation** and **Sentiment Analysis** of audio |
| **Strategy** | • **Researched** and **evaluated** many state of the art **pre-trained models** available across all ML domains<br>• **Fine-tuned** and modified the input-output layers of pre-trained models to **improve evaluation metric** |
| **Impact** | • Delivered complete machine learning pipeline to get customer sentiment trend at the end of the conversation |

**KPIT Technologies | Data Science Intern** *May'21 - Jul'21*

| | |
|---|---|
| **Objective** | • Deliver an unsupervised **Anomaly Detection** model for real time **health monitoring** of the **engine oil** |
| **Strategy** | • Applied LOWESS smoothing on the data of 16 sensors to remove noise and increase efficiency of algorithms<br>• Performed unsupervised **feature selection** using **Deep Neural Network** and bountiful visualizations<br>• Developed **temporal probabilistic** failure prediction model using **Autoencoders** with **<10%** false alarm |
| **Impact** | • Achieved **85% recall** on predicting anomalies in engine oil cycle and **<5% reconstruction error** mean |

## Key Projects

**Tweet Sentiment Extraction** (*Science and Technology Council, IIT Kanpur*) *May'20 - Jul'20*

- Built **NLP model** which takes tweet and sentiment as input and outputs part of the tweet which represents that sentiment
- Performed **Exploratory Data Analysis** and stacked **5 layers** on top of **RoBERTa** to increase robustness of the model
- Integrated a **5-fold cross validation** using **stratified** sampling to reduce overfitting and accomplished **0.715 jaccard score**

**Autonomous Underwater Vehicle** (*Mentor: Prof. Indranil Saha*) *May'19 - Mar'20*

- Designed **detection** and **tracking** algorithm to detect complex objects and its center under water using **OpenCV** library
- Created **multi-class labelled underwater dataset** for training the State-of-the-Art real time object detection system
- Tweaked the vision layer in the codebase to complete **image processing** tasks meticulously while improving its robustness

**Self-Driving Vehicle Simulation** (*Mentor: Prof. Venkatesan Kanagaraj*) *Jan'20 - May'20*

- Pre-processed the **point cloud** data, collected by Velodyne's Puck lidar sensor(VLP-16), in MATLAB to remove invalid points
- Implemented algorithm to differentiate ground points while getting bounding boxes of different objects by **DBSCAN** algorithm

## Skills

**Data Science**: SQL, Pandas, Numpy, Matplotlib, Keras, Scikit-learn | **Robotics**: ROS, OpenCV
**Programming Languages**: Python, C, C++ | **Utilities**: Excel, LaTeX, MATLAB, Git

## Relevant Coursework

Introduction to Machine Learning
Applied Probability & Statistics
Data Mining & Knowledge Discovery
Computational Methods in Engineering
Fundamentals of Programming
Operations Management