



# Saransh Gupta | 17QM30005

Quality Engineering Design and Manufacturing (M. Tech Dual 5Y)  
MICRO SPECIALIZATION IN ARTIFICIAL INTELLIGENCE AND APPLICATIONS

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## EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2022	M.TECH Dual Degree 5Y	Indian Institute of Technology, Kharagpur	7.92/10
2016	Higher Secondary Examination	Board of Secondary Education, Rajasthan	85.4%
2014	Secondary School Examination	Board of Secondary Education, Rajasthan	89.5%

## PUBLICATIONS

- (Gupta et al.) An integrative machine learning and Bayesian modeling approach highlights the crucial roles of the Rho-GDI signaling pathway in the progression of non-small cell lung cancer (NSCLC); implications for drug target discovery, (under review), **IEEE Journal of Biomedical and Health Informatics (JBHI-01644-2021), 2021**
- (Saransh Gupta, Udayaditya Singh, Krantiraditya Dhalmahapatra, Jhareswar Maiti) Development of a virtual reality-based fire training simulator and machine learning-based path guidance system: A case of hospital fire breakouts (working paper), **2nd International Conference on Human Interaction & Emerging Technologies: Artificial Intelligence & Future Applications, 2020**, Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland

## RESEARCH EXPERIENCE

**Osaka University, Japan | Undergraduate Research Assistant** **Jan '20 - Dec '20**  
**Project:** Predicting Non-Small Cell Lung Cancer (NSCLC) using Machine Learning, identify its potential drug targets

- Extracted **412** essential genes out of **10077** by applying **Boruta** Feature selection on their gene expression dataset
- Obtained **99%** accuracy upon validation and **100%** on test dataset by using the **CatBoost** model to predict NSCLC
- Simulated a **Bayesian Network Model** for the Rho GDI signaling pathway to discovering the drug targets
- Discovered methodology leads to an accurate treatment of the disease impacting **85%** of the lung cancer patients

**Tools and Software:** Python, TargetMine, scikit-learn, smote, NetworkX, NumPy, pandas, Plotly, joblib

## CORPORATE INTERNSHIPS

**ZS Associates India Private Limited | Data Science Associate - Intern** **Jan '21 - Jun '21**  
**Project - 1:** Extract biomedical text dataset, identify entities, and classify if there exists a relation between entities

- Created a pipeline to extract texts from PubMed database, identifying the entities using **Selenium** and **PubTator**
- Implemented **Binary Classification rules** for labeling functions using bio-verbs and co-occurrence of entities
- Generated a **labeled dataset** utilizing the labeling functions and Snorkel using weak-supervised learning
- Achieved **F1 score** of **0.88** on the gold-standard dataset in relation-classification by training **RoBERTa base** model

**Project - 2:** Determine the type of relationship between two entities if it exists from the results of the Project-1

- Created a new set of labeling functions for **relation-type classification** by using the results of project-1
- Attained **F1 score** of **0.83** on the gold-standard dataset using **CatBoost** Model followed by feature engineering

**Tools and Software:** Python, TensorFlow, Transfer Learning, Medline-Plus API, PubTator, Selenium, Snorkel

**Sapio Analytics India Private Limited | Data Analyst - Intern** **May '20 - Jul '20**  
**Project:** Build a data-driven Decision Support System for the prediction of COVID-19 at the hyper-local level

- Fabricated **SEIRD** model using Migration, Lockdown conditions, reduced **RMSE** up to **4.8%** by tuning parameters
- **The Govt. Of Telangana** has used the application to mitigate COVID-19 while maximizing the economic activities

**Tools and Software:** Python, MySQL, scikit-learn, SciPy, AWS Server, NumPy, pandas, Plotly, joblib

## AWARDS AND ACHIEVEMENTS

- Conferred merit-based scholarship of **2200 €** by The A\*Midex Foundation, L'Universit d'Aix-Marseille, France
- Selected amongst **Top 5%** applicants for the summer fellowship at The Institute of Science & Technology Austria
- Featured in the **ISE Newsletter Autumn - 2020** under the Department Spotlight of ISE fights COVID-19
- Awarded as **Intern of The Month** for my contribution as a Data Analyst - Intern at Sapio Analytics by the CEO

## COMPETITION / CONFERENCE

- Cleared the hackathon organized by **Amazon India** for Virtual Machine Learning Summer School in July 2021
- Attended the Jumpstart by the **Publicis Sapient**s after qualifying the aptitude and the Coding Rounds in July 2021
- Invited to join the Young Data Scientists annual meetup at **Kaggle - days 2020, Dubai World Trade Centre**
- **Winner** at Data Analytics and Business Case Study Event held at **Shaastra, IIT Madras** in January 2020
- **Gold-Winner** at the Inter-hall Data Analytics competition organized by the **TSG - IIT Kharagpur** in February 2019

## EXTRA CURRICULAR ACTIVITIES

- Part of the **Gold-Winning** water-polo team of Azad Hall of Residence at Inter-hall general championship, 2019
- Lead presenter of the **Gold-Winning** team of Azad Hall of Residence at Inter-Hall Gardening competition, 2019
- Raised a sponsorship of **51,000/- INR** at **KHOJ**, the treasure hunt event organized by Azad hall of residence, 2019
- Recognised by the Dean, Student Affairs for mentoring **six** juniors under the Student Mentorship Programme