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

• *(Gupta et al.)* Development of a virtual reality-based fire training simulator and machine learning-based path guidance system *(working paper),* ***IHIET-AI, 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 **10,077** by applying **Boruta** Feature selection on their gene expression dataset
• Obtained **99%** accuracy upon validation and **100%** on test dataset by using the **XGBoost** 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**, devised **four** labeling functions using bio-verbs, co-occurrence of entities
• Generated the **training dataset** utilizing the labeling functions and Snorkel by applying weak-supervised learning
• Achieved **F1 score** of **0.88** on the gold-standard dataset in relation-classification by training **RoBERTa base** model
Project - 2: *Identify the type of relationship between two entities if it exists from the results of the Project-1*
• Created a new set of **three** labeling functions for **relation-type identification** 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

• Featured as one of the **Top 30** UG Achievers of IIT Kharagpur in the **UG Achievers Directory 2019 - 2020**
• Conferred merit-based scholarship of **2200 €** by The A*Midex Foundation of The Aix-Marseille University, France
• Selected amongst **Top 5%** applicants for the summer fellowship at The Institute of Science & Technology Austria
• Awarded as **Intern of The Month** for my contribution as a Data Analyst - Intern at Sapio Analytics by the CEO
• Featured in the **ISE Newsletter Autumn - 2020** under the Department Spotlight of ISE fights COVID-19

COMPETITION / CONFERENCE

• Cleared the hackathon organized by **Amazon India** for Virtual Machine Learning Summer School in July 2021
• Attended the Jumpstart by the **Publicis Sapients** 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**
• **Runner-Up** at Data Analytics and Business Case Study Event held at **Shaastra, IIT Madras** in January 2020
• **Bronze-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
• Managed a technical workshop on SolidWorks at Jadavpur University organized by **teamKART**, IIT Kharagpur