



# Saransh Gupta

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## EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2022	M.TECH Dual Degree 5Y	Indian Institute of Technology, Kharagpur	7.51/10
2016	XII(RBSE)	Rajasthan Board	85.4%

## Research Experience

**Research Assistant | Mizuguchi Lab | NIBIOHN, Osaka, Japan | Guided by [Dr. Kenji Mizuguchi](#) Duration: Jan 2020 - present**

- Worked on a high-dimensional data containing 10077 genes with their expressions values to predict the Non-small cell lung cancer (NSCLC) using Machine Learning along with estimating the key features (genes) whose content affects the most for this type of cancer.
- Implemented **Boruta Feature selection** technique to sample out **412 crucial genes** which are mainly responsible for this cancer.
- Used R tools like WGCNA for hierarchical clustering to examine the contributions of genes and [TargetMine](#) for the enrichment analysis of the genes in different pathways for the potential drug target discovery using the selected genes and the obtained enriched pathways.
- Applied **CUDA enabled CATBOOST classifier** to predict the cancer with an accuracy **99% on validation & 100% test**.
- Implemented **Boruta Feature selection** technique to sample out 412 crucial genes out of all which are mainly responsible for this cancer.
- Programmed a **Bayesian Network Simulation** in python on "**Rho GDI signalling pathway**" for identifying significant drug targets.
- **Tools:** Python, Boruta, WGCNA, R, TargetMine, Reactome, scikit-learn, SMOTE, Bayesian Belief Networks, Graph Theory.

## Internship Experience

**Lead Data Analyst | COVID-19 Indian National Supermodel (INS) | [Sapio Analytics, India](#) Duration: May - July 2020**

- Led the team with an objective to build an Ai driven Decision Support System for the prediction of COVID-19 at the hyperlocal level.
- Built and deployed **Migration and Lockdown based Machine Learning optimized** Susceptible - Exposed - Infectious Recovered Died (**SEIRD**) model for the Indian states of Telangana, West Bengal to help governments taking decisions on lockdown.
- Awarded as "**Intern of the Month, July, 2020**" by [Mr. Ashwin Srivastava](#), the CEO of the Sapio Analytics and **Forbes 30 under 30 Asia 2017** for my contribution in Indian National Supermodel (INS) on COVID-19 prediction at the hyperlocal level.

**Deep Learning & Computer Vision Software Development Intern | [Swaayatt Robots, India](#) Duration: April - June 2020**

- Worked with a team of Computer-Vision enthusiasts and contributed towards automating the feature extraction and bounding box tracking for the simulation of autonomous cars using CARLA Simulator in different conditions of Day light, weather and road semantics.
- Programmed **SuperPoint** algorithm, a deep learning approach to extract the features of an image for Point tracking & Visual Odometry.
- Trained & tested the **Linear Style Transfer** algorithm to change the semantics of the road & convert day-night in images.

## Self-Projects

**Detection of Malaria using blood smears images with Deep Learning | Kaggle | ([GitHub link](#))**

- Trained a Deep Learning model using **CNN** on Malarial and Non-Malarial Pathological Slides to predict the Disease with an accuracy of **96%**.
- Used **Image processing** to blur, rotate, resize the image to increase the data-set content and improve the robustness of the model.
- **Tools and Softwares:** Python, pandas, numPy, tensorflow, Convolutional Neural Networks, Opencv, Image Processing.

## SKILLS & EXPERTISE

- Programming & applications: Python, C++, R, C, Arduino, Image Processing, Video Analytics, Machine Learning, Deep Learning.
- **Tools and Softwares:** Tableau, MATLAB, ANSYS, Solid works, Unity3D, R-Studio, MATLAB, SOLIDWORKS, Visual Studio, MS-EXCEL.

## COMPETITIONS/SCHOLARSHIPS/Conferences

**The A\*Midex foundation scholarship worth 2200 euros from Aix-Marseille University | Marseille, France May-July 2020**

**International Conference on Human Interaction & Emerging Technologies: Future Applications | August 27-29, 2020**

- Research Paper on "*Development of a virtual reality based fire training simulator and machine learning based path guidance system: A case of hospital fire breakouts*" will be presented virtually in the International Conference on Human Interaction & Emerging Technologies: Future Applications to be held at Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland.

**The Annual Inter-Hall Data-Analytics competition | Azad-Hall | Technology Students Gymkhana | IIT Kharagpur | Date: 10/02/2019**

- Awarded with **BRONZE** for the Inter-Hall Data-Analytics General Championship organized by The Technology Students Gymkhana.

**DataBuzz | Data-Analytics and business case study event | Shaastra-the annual Tech Fair | IIT Madras | Date: 6/01/2020**

- Stood **2nd** at the data analytics event DataBuzz | Shaastra, the annual Tech and Innovation fair at IIT Madras in Jan, 2020.

## POSITIONS OF RESPONSIBILITY

**IIT KGP Student Mentorship Program | Student Welfare Group | Technology Students Gymkhana | IIT Kharagpur | From July 2019**

- Mentoring four undergraduate students of the same branch under the shade of Student Welfare Group, IIT Kharagpur.

## CERTIFICATIONS & COURSES

- **Department Courses:** Probability Statistics, Operations and Research, Programming and Data Structures, Optimization Heuristic Methods
- **Mooc Courses:** Machine Learning, Data Analytics, Algorithms in programming, Deep Learning, 3D Simulations and Virtual Reality. Online Deep Learning, non-credit specialization by deeplearning.ai | coursera

## EXTRA CURRICULAR ACTIVITIES

- Swimmer at water-polo team of Azad-hall of residence, Inter-hall general championship events, TSG - IIT Kharagpur during March 2018.
- Presentation team member of Inter-Hall Gardening competition team at Azad-hall of residence, TSG - IIT Kharagpur during March 2019.
- Manager at KHOJ, the annual treasure hunt event conducted by The Azad hall of residence and TSG, IIT Kharagpur during August 2018.