



Gaurishankar Swain
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Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
DOB: 03/04/2004

| Examination | University | Institute | Year | CPI / % |
|---------------|------------|--------------------------|------|---------|
| Graduation | IIT Bombay | IIT Bombay | 2025 | |
| Intermediate | CBSE | SAI International School | 2021 | 96.40% |
| Matriculation | CBSE | Modern Public School | 2019 | 95.80% |

Pursuing Minor in **Artificial Intelligence & Data Science** from C-MInDS Department, IIT Bombay

SCHOLASTIC ACHIEVEMENTS

- Placed in the top **0.47** percentile in **JEE Mains** amongst **1.2+** million students from all across India ('21)
- Ranked among the top **1.67** percentile in **JEE Advanced** from **0.15+** million students all over India ('21)
- Placed in the **Top 40** in Indian Olympiad Qualifier in Physics (**IOQP**) Level-2 organized by IAPT ('21)
- Secured rank **112** among **0.1+** million students in **NEST** organized by NISER for CEBS, Mumbai ('21)
- Conferred with **KVPY Fellowship** by IISc and ranked in top **1.3** percentile among **0.1** million participants ('20)

PROFESSIONAL EXPERIENCE

Web and Technical Intern | IFP Petro

(Dec '22 - Jan '23)

IFP Petro Products (P) Ltd. provides refining, blending, packaging, testing, storing, and logistics services to companies

- Reduced the website loading time by **20%** and enhanced **user experience** by successfully implementing new design
- Optimized the process of **collection** and **transport** of used oil by developing a **MERN Stack** application from scratch
- Curated a model using **KMeans Clustering** to assign feasibility score based on quantity and distance of providers
- Computed the **mean squared error** w.r.t manual scoring and minimized the loss to calculate scoring model constants

KEY PROJECTS

Financial Fraud Detection | Self Project

(June '23)

- Visualized data obtained from **275,000+** credit card transactions using the **t-SNE** algorithm to check the validity of modelling as **Anomaly Detection** and used **power transformations** to build a **Gaussian Anomaly Detection Model**
- Applied Machine Learning techniques to build various models like Logistic Regression, KNN, Random Forests, Gaussian NB, Decision Tree and found Random Forests to be the best with an **F1 score-0.97** and **F2 score-0.92**
- Implemented other ensemble methods like **XGBoost** and **LightGBM** to improve the performance on the model

Options Pricing Models and Accuracy | Finsearch | Finance Club

(June '23 - Present)

- Leading a team of 4 to implement **5+ options pricing models**; predicting derivatives price and **market volatility**
- Achieved an accuracy of **78%** through Artificial Neural Network against the **Black Scholes Model** of **58%** accuracy
- Analysed **10+** option trading strategies, including Naked Call, Bull Call Spread, Bear Put Spread, and Iron Butterfly

Real Time Drowsiness Detector | Summer of Code | Web and Coding Club

(May '23 - July '23)

- Leveraged packages like **OpenCV** and **Numpy** to pre-process the **MRL Eye Dataset** containing 35k+ datapoints
- Trained a **MobileNet-V2** based transfer learning model on the dataset to differentiate between blinking and dozing
- Engineered a Python code utilizing **HaarCascade** and the training model to detect drowsiness through the webcam.

Algorithmic Trading | Summer of Science | Maths and Physics Club

(May '23 - Present)

- Researching **10+** algorithmic trading strategies, like **Calendar Spread**, **Pairs Trading**, and **Statistical Arbitrage**
- Analysed a statistical arbitrage strategy using **ARMA** and backtested the cointegration approach to optimize alphas

Data Analysis of IPL | Winter in Data Science | Analytics Club

(Dec '22 - Jan '23)

- Conducted in-depth data analysis on a comprehensive IPL dataset comprising **15 years** of match data and statistics.
- Implemented Predictive Data Analysis using **Linear**, **RF**, and **SVM Regressors** to predict final scores of an innings
- Achieved a maximum predictive accuracy of **68%** using **Random Forest** algorithm to forecast match outcomes

Stock Price Forecaster | Course Project

(Mar '23 - May '23)

Guide: Professor Abir De | Introduction to Machine Learning

- Developed a deep learning model utilizing **LSTM neural networks** for time series forecasting of stock prices
- Identified outliers using **box-plots** during pre-processing and normalised the data using **MinMaxScaler**
- Validated the performance with **R2 : 0.9742** and **RMSE : 25.399** evaluation metrics illustrating model feasibility

ORGANIZATIONAL & MENTORSHIP ROLES

Associate Placement Coordinator | Institute Placement Team, IIT Bombay (July '23 - Present)

Part of a 8-membered core managerial team | Executing the end-to-end operations in a hybrid placement season

- Managing the hybrid assessments, preparatory events, PPTs and 200+ tests for 1900+ students' campus placements
- Streamlining 6000+ interviews and tests for 400+ companies by training a team of 250+ interview coordinators
- Spearheading the overall recruitment process of 50+ companies as a sole point of contact in diversified sectors

Events and Web Convenor | Institute Sports Council, IIT Bombay (May '22 - Mar '23)

Responsible for providing technical support for 150+ sports activities undertaken by Institute Sports Council

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|----------------|--|
| Events | Successfully conceived the first sports GC Opening Ceremony , attracting a crowd of 500+ attendees Collaborated with Decathlon to organize their Pop-Up event on campus on National Sports Utsav Ideated the Half-Marathon event annually catering to 5k+ participants under 3 running categories |
| Sports App | Worked on a fully responsive platform web app using MEAN stack which caters to 10k+ users Launched features like Digital YearBook , Grievance Redressal , and sections for different sports clubs Developed GC and Inter-IIT components for displaying live scores and standings of participants |
| Booking Portal | Developed a fully responsive web app using Django and React for booking campus courts Implemented user authentication and authorization features using Django's built-in functionality Managed the entire development process including ideation, implementation , and testing . |

Academic Mentor | Department Academic Mentorship Program (May '23 - Present)

Part of a 35-member team selected from 79 applicants after rigorous process of stringent interview and peer reviews

- Co-mentoring 6 sophomores on a one-to-one basis about various academic and extracurricular college activities
- Maintaining a comprehensive blog for over 300+ students; providing information relevant to courses and projects

Teaching Assistant | Department of Mathematics, IIT Bombay (May '23 - June '23)

Guide: Prof. Prachi Mahajan and Prof. Debajana Mitra

- Responsible for **academically mentoring** a batch of 40+ freshmen students for the course on Differential Equation
- Conducted weekly tutorials for **problem-solving** and helped **clear conceptual doubts** by one-on-one interaction

Web Coordinator | Entrepreneurship Cell, IIT Bombay (Aug '22 - Feb '23)

Team member of Asia's largest entrepreneurship-promoting body recognized by NEN | 30000+ attendees | 700+ start-ups

- Formulated a quiz to gauge PCOS in woman and implemented **Django APIs** to send emails to the participants
- Developed a **Flutter-Django** based cross-platform application for attendance and registration during E-Summit
- Incorporated the E-Summit **Figma** wireframe on **Angular** and developed the Seed Stars and TTMM components

TECHNICAL SKILLS

- Programming & Scripting:** C, C++, Python, R, Git, HTML5, CSS, Javascript, \LaTeX
- Frameworks & Packages:** Angular, Django, NumPy, Panda, Matplotlib, Scikit-Learn, Tensorflow
- Web Development:** Bootstrap, ReactJS, MongoDB, PHP, MySQL, NodeJS, Express
- Software Skills:** MS Excel, Google Colab, MATLAB, AutoCAD, RStudio, Google Lookup Studio

KEY COURSES UNDERTAKEN

- Machine Learning** - Introduction to Machine Learning, Supervised Machine Learning, Unsupervised Learning, Recommenders, Reinforcement Learning, Advanced Learning Algorithms,
- Finance** - Fundamentals of Finance, Introduction to Corporate Finance, Fundamentals of Quantitative Modelling, Private Equity & Venture Capital, Trading Algorithms
- Mathematics** - Linear Algebra, Calculus, Introduction to Numerical Analysis, A First Course in Optimization, Data Analysis and Interpretation, Differential Equations

EXTRACURRICULAR ACTIVITIES

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|---------------------|--|
| Sports | Represented Hostel 2 in Kho-Kho GC and secured 2nd place amongst 8 competing hostels ('23) Competed as the cyclist for Hostel 2 in the Triathlon team during GC and secured 3rd place ('23) Achieved 3rd position in the Institute Football League hosted by the Sports Council. ('23) |
| Mentorship & Social | Mentoring students for Summer reading projects on Network Security and Cryptography ('23) Cleaned 3+ tonnes of garbage as one of 400+ volunteers during Powai Lake Cleanup ('23) |
| Miscellaneous | Achieved the 3rd position in Jhatka GC by solving circuitry, mathematical and coding problem ('23) Won the Treasure Hunt organized in Metals and Materials Summit amongst 15+ teams ('22) Participated in XLR8 , an annual competition organized by ERC, and made a RC Operated Bot ('22) Successfully finished the Data Science and Machine Learning Bootcamp by Analytics Club ('22) Completed a reading project on Network Security under Summer of Science ('22) Underwent training in Lawn-Tennis conducted by National Sports Organization ('21 - '22) |