EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2025	M.TECH Dual Degree 5Y	IIT Kharagpur	8.45 / 10
2021	Central Board of Secondary Education	Divine Public School	87.00%
2019	Central Board of Secondary Education	Vivekananda Central School	94.60%

AWARDS AND ACHIEVEMENTS

• Attained title of **Expert** with a rating of **1615** on **Codeforces** (ID: Shahil_Gupta) & **5*** with a rating of **2009** on **Codechef** (ID: atpuglihahs)
• Secured a **global rank** of **21** in the CodeChef Starters 135 2024 (**Division 2**) & **70** in the CodeChef Starters 123 2024 (**Division 4**) contests
• Ranked in the top **0.5%** among over **1 Lakh** students in Code with Cisco 2023, consequently securing a coveted **Pre-Placement Interview**
• Achieved an All India Rank amongst the **top 0.8%** in JEE Mains and the **top 2%** in the JEE Advanced 2021 amongst over **12 Lakh** students

INTERNSHIPS AND PROJECTS

Research Internship | Deakin University   **[May 2024 - Present]**
Overview: Under the guidance of Professor Ye Zhu (Deakin), developed MemStream using a denoising autoencoder and memory module
• Developed MemStream, using denoising **autoencoders** & **memory modules** for streaming anomaly detection and concept drift handling
• Achieved an average AUC-PR (Area Under the Precision-Recall Curve) score of **0.85** on real-world datasets such as NSL-KDD & KDDCUP99
• Engineered robust mechanisms in MemStream to effectively prevent **memory poisoning** & facilitate **self-correction** improving accuracy

Research Consultant | WorldQuant   **[Feb 2024 - Present]**
Overview: Constructed, backtested, and optimized over 20 quantitative trading alpha expressions using historical stock market information
• Engineered **20 trading criteria** to weigh stocks of portfolios from the subsets of **top 3000** most liquid **equities** of the **US** & **CHN** markets
• Employed different **fundamental** & **technical** analysis **datasets** like trading, analyst, fundamental, options data to improve performance
• Optimized each alpha to a minimum **Sharpe** of **1.25**, **fitness** of **1** and turnover below cutoff **70%** for an in-sample backtest of **5 years**

Time series Models | Course Project   **[Mar 2024 - Apr 2024]**
Overview: Developed a web application to compare time series forecasting models for datasets like airplane travel & stock market prices
• Implemented **AR** and **ARMA** from scratch using SciKitLearn for linear regression incorporating adjustable lag values and rolling window
• Utilized statsmodels with interactive sliders for parameter selection and seasonal adjustments in **SARIMAX**, achieved **99%** accuracy
• Built the web application using **Streamlit** and **Plotly** (visualizations), with a UI for parameter tuning and model performance monitoring

Credit Card Approval Predictor | Self Project   **[Nov 2023 - Dec 2023]**
Overview: Developed a Credit Card Approval Predictor in Python, optimizing data handling, encoding techniques, and Decision Tree modeling
• Employed imputation strategies for continuous and categorical data, ensuring the integrity of multi-class dataset containing **15+** features
• Utilized **Ordinal Encoding** to convert categorical data, optimizing it for ensemble model integration & improving predictive performance
• Achieved **85.09%** test accuracy and **85.5%** training accuracy with Decision Trees, effectively balancing bias/variance & reducing overfit

Predictive Maintenance | Inter Hall Data Analytics   **[Mar 2023 - Apr 2023]**
Overview: Collaborated with a team of 10+ to create a system that predicts the risk level of an automated manufacturing unit
• Evaluated data from **25** sensors, applying **logarithmic** & **Fourier transformations** for data preprocessing with prediction every **10** min
• Implemented **LSTM**, **Temporal Convolutional Networks**, and **statistical models (AR, MA)**, resulting in a **15%** improvement in accuracy
• Achieved exceptional model performance with a **bi-directional LSTM**, attaining **95.2%** training accuracy along with **91.2%** test accuracy

SKILLS AND EXPERTISE

Languages - C | C++ | JavaScript | Solidity | Python | HTML | CSS   **Software:** VS Code | MS Office | Git Hub | Jupyter | PyCharm
External Libraries and Tools - Numpy | Pandas | TensorFlow | Scikit Learn | statsmodel | scipy.stats | C++ STL | Matplotlib | Seaborn

COURSEWORK INFORMATION

Programming and Data Structures* | Design and Analysis of Algorithms | Computer communication and Networking | Algorithms 1 |
Probability and Statistics | Advanced Calculus | Transform Calculus | Linear Algebra, Numerical and Complex Analysis   *(Lab + Theory)

POSITIONS OF RESPONSIBILITY

President | Poshan Chapter | Feeding India by Zomato   **[Sep 2023 - Present]**
• Spearheaded a team of **50 students** to organize and execute a **donation camp** for an orphanage, coordinating the distribution of supplies
• Led a fundraising campaign, which culminated in the generation of over **INR 50k** to support the critical needs of underprivileged children

Secretary Dramatics | Patel Hall of Residence | IIT Kharagpur   **[Nov 2022 - Mar 2023]**
• Conducted Practice sessions of the dramatics events, **General Championship, Social and Cultural** for the academic session 2022-2023
• Managed a budget of over **INR 100,000** for Dramatics events, overseeing the organization of Stage Plays, Street Plays, and Choreography

EXTRA CURRICULAR ACTIVITIES

• **Sports:** Won the **Silver Medal** in the Intra-Hall Chess Tournament at Patel Hall of Residence, securing **2nd** place among **50+** participants
• **Cultural:** Led a team of **100+** students as **Vice Captain** of Illumination and Rangoli for Diwali at Patel Hall of Residence, IIT Kharagpur
• **Volunteer:** Led academic support for students & organized community rallies in Malma Village as a volunteer, **National Service Scheme**
• **Mentoring:** Mentored 1st-year undergraduate students in the Programming and Data Structures, taught core concepts of C programming