Sparsh Rastogi

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EDUCATION

- **Indian Institute of Technology (IIT) Patna** — Patna, India
  B.Tech in Artificial Intelligence and Data Science (CPI: 8.78) — *July 2023 - May 2027 (Expected)*
  (transcript)

- **Mother Athena School** — Badaun, India
  All India Senior School Certificate Examination (AISSCE), CBSE (97.2%) — *Apr 2020 - Mar 2022*

ACCOMPLISHMENTS

- **Competitive Programming**

  - **Expert** on Codeforces with a peak rating of **1633**.(Profile)
  - Secured **Global Rank 701** in Codeforces Round 1009 (Div. 3), against 36760 international participants. (Results)
  - Attained **Global Rank 1888** in Codeforces Round 1002 (Div. 2), competing among 35,190 programmers. (Results)

- **Academic Achievements**

  - Secured an impressive **AIR 6,437** in JEE Advanced 2023, competing among **180,000+** Mains qualified candidates.
  - Ranked in the **top 0.53%** out of **1.11 million** candidates in JEE Mains 2023.
  - Scored an outstanding **97.2%** in CBSE 12th Board examinations .

- **Competitions & Certifications**

  - Successfully qualified for **Stage 2** of the IQC 2023 by WorldQuant, securing an impressive **Global Rank of 60**.

PROJECTS

- **Power-Plant Frequency Prediction and Forecast** — **Source Code**
  Group Project — *2025*
  - Developed a **time-series forecasting model** to predict power grid frequency fluctuations using **ARIMA and LSTM**.
  - Collected and processed **100,000+ data points**, applying trend analysis, data smoothing, and outlier detection.
  - Benchmarked **ARIMA vs. LSTM**, achieving a **27% improvement** in accuracy with deep learning.
  - Optimized model performance, reaching an **R^2 score of 0.4600** and **MSE of 0.0014**.
  - Implemented **hyperparameter tuning**, reducing training time by **15%** and enhancing forecast precision.

- **BudgetAcer: Expense Management System** — **Source Code**
  Group Project — *2025*
  - Developed a full-stack **MERN-based** Expense Management System
  - Implemented **JWT-based authentication** for secure user login, ensuring **99.9% uptime**.
  - Designed an **interactive dashboard** with **dynamic charts (Pie & Bar)**, improving expense tracking efficiency.
  - Deployed frontend on **AWS Amplify** and backend on **Render**

SKILLS & RELEVANT COURSEWORK

- **Programming Languages Frameworks:** C++, Python, JavaScript, HTML , SQL, Node.js , Express.js , react js .

- **Core Courses:** Data Structures & Algorithms (DSA), Artificial Intelligence (AI), Data Analytics, Digital Logic, Computer Organization, Database Management Systems (DBMS)

- **Software Development:** Object-Oriented Programming (OOP), Shell Scripting, API Development, MySQL

- **Machine Learning & Deep Learning:** Scikit-learn, Pandas, NumPy, ARIMA, LSTM, KNN, DBSCAN, Decision Trees, Clustering

- **Data Visualization:** Matplotlib, Seaborn

EXTRACURRICULAR ACTIVITIES

- **Participated** in **SIH'24**, Worked on an attendance tracking system for GAIL (India) Ltd.
- Member of the Hospitality Committee for the annual cultural fest Anwesha'24.