

Souvik Senapati

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Education

B.Tech in Artificial Intelligence & Machine Learning	Netaji Subhash Engineering College, Kolkata 2022 - 2026
XII CBSE	Assembly of God Church School, Purulia 2022
X ICSE	St.Peter's School, Purulia 2020

Work Experience

InGreens [🔗](#) Feb 2026 – Present
Software Development Engineer Kolkata

- Developing an end-to-end Human Resource Management System (HRMS) using FastAPI, covering core HR workflows including employee management, attendance, payroll, and performance tracking.
- Designing modular APIs and database schemas to support scalable HR operations with role-based access control and secure data handling.
- Implementing automated background jobs and validation pipelines to ensure data consistency, system reliability, and high availability.

West Bengal Electronics Industry Development Corporation Limited (WEBEL) [🔗](#) Nov 2025 – Feb 2026
Data Science Intern Kolkata

- Built production FastAPI-based Government Service Recommendation System serving 33M+ records (16.6M citizens, 16.5M provisions) with 3 hybrid engines — district-based, K-Means demographic clustering, and OpenAI content-based filtering
- Automated weekly data sync via APScheduler with JWT auth, processing 10,000-record batches and achieving 99.9% data consistency through intelligent UPSERT operations
- Deployed scalable Docker architecture with Gunicorn (4 workers), PostgreSQL pooling (20+40), and zero-touch initialization, reducing deployment time from 2+ hours to 10 minutes
- Delivered API for 327 services with health monitoring and Swagger docs, achieving sub-200ms recommendation response times

Celebal Technologies [🔗](#) Jun 2025 – Aug 2025
Data Science Intern Jaipur

- Forecasted scores with **92%+ R²** using **LightGBM, XGBoost and Linear Regression** on academic datasets.
- Applied **SHAP analysis** to extract **top-2 negative drivers** per prediction.
- Generated **quantified insights** like “+2 hrs study”, “+10% attendance” via SHAP scores.
- Deployed a **Flask-based dashboard** with PDF export via jsPDF & html2canvas.

W.B State Electricity Distribution (WBSEDCL) [🔗](#) Jul 2024 – Aug 2024
IT & C Intern Kolkata

- Rolled out smart metering infrastructure (AMI) for **10,000+** commercial users to enable real-time billing.
- Integrated SMS-based alerting pipeline, improving outage communication by over **50%**.
- Operated **SAP IS-U/CRM** for meter setup, load adjustments, and service issue tracking.

Projects

Eye Disease Prediction Using Fundus Video [🔗](#) [Source Code](#)

- Built a pipeline using YOLOv8-Seg for real-time **CDR & SVP prediction** on **10,000+ retinal frames**.
- Enhanced detection speed by **40%** using CLAHE, Kalman filtering & contrast boosting.
- Boosted accuracy by **25% (SVP)** and **20% (CDR)** through targeted preprocessing.

TejstraX: Real-time AI Chatbot (Nhost + Hasura) [🔗](#) [Source Code](#)

- Built a secure, real-time AI chat application with React (Vite), Apollo Client, and Nhost/Hasura GraphQL.
- Implemented **Row-Level Security (RLS)** and GraphQL subscriptions for per-user isolation and live updates.
- Used a **Hasura Action** to route messages to a backend workflow that calls the LLM and persists replies.
- Designed polished UX: markdown/code rendering with copy, chat CRUD, last-message edit/regenerate, responsive theming.

Technical Skills

Languages:	Python, Java, C++, JavaScript, SQL
Machine Learning:	Scikit-learn, XGBoost, LightGBM, SHAP, CatBoost, etc.
Deep Learning & LLMs:	TensorFlow, PyTorch, Keras, CNN, RNN, Transformers, LLMs, LLM Evaluation
Generative AI Tools:	LangChain, RAG Pipelines, FAISS
Data Science:	Pandas, NumPy, Seaborn, Matplotlib, Power BI, SAS
Backend:	Flask, Gunicorn, Node.js, Express.js, RESTful API, Streamlit
Frontend:	React, Tailwind CSS, HTML, Bootstrap
Databases & Tools:	MySQL, MongoDB, Git, Docker, Postman, VS Code

Certifications

- Completed certifications in [Machine Learning](#), [Cloud Computing](#), [Generative AI Foundations](#) and [Generative AI](#).