

Sudip Das

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Education

Indian Institute of Technology (ISM), Dhanbad

2024-2026

M.Tech. in Data Analytics (Mathematics and Computing) (CGPA: 7.95/10)

Dhanbad, Jharkhand

- **Relevant Coursework:** Numerical Linear Algebra, Machine Learning, Neural Networks and Deep Learning, Adv. DSA, Adv. DBMS, PowerBI, Cryptography and Statistics in Decision Making.

Visva-Bharati University, Shantiniketan

2021-2023

M.Sc. in Mathematics (CGPA: 6.86/10)

Bolpur, West Bengal

Ramakrishna Mission Vivekananda Centenary College, Kolkata

May 2021

Bachelor of Science in Mathematics (Hons.) (CGPA: 7.57 / 10)

Kolkata, West Bengal

Projects

Thesis Project: HA-SplitFed – Heterogeneous Split Federated Learning | PyTorch, Federated Learning, Edge AI

- Designed a heterogeneous SplitFed framework supporting ResNet, MobileNet, and CNN-based edge clients with adaptive model partitioning.
- Implemented multi-head server, UCB-based dynamic cut-layer selection, and asynchronous FedProx aggregation for efficient distributed training.
- Validated on CIFAR-10, SVHN, and MNIST datasets achieving 65.0%, 70.2%, and 95.7% accuracy respectively.

Local LLM Chat System with Secure API Integration | FastAPI, Ollama, Llama 3.1, Streamlit

- Built a full-stack AI chatbot using locally deployed Llama 3.1 (8B), FastAPI backend, and Streamlit frontend.
- Implemented JWT authentication, protected inference APIs, password hashing, and database handling using SQLAlchemy and SQLite.
- Developed modular architecture separating API routes, authentication, database, and LLM service components.

Insurance Premium Prediction ML Application | FastAPI, Streamlit, scikit-learn

- Developed an end-to-end ML inference system for insurance premium prediction with FastAPI REST APIs and Streamlit interface.
- Implemented feature engineering pipelines including BMI, lifestyle risk, age grouping, and city-tier extraction with Pydantic validation.
- Deployed a modular scikit-learn prediction workflow providing confidence scores and probability-based outputs.

Technical Skills

Programming & Databases: Python, C++, SQL, MySQL, LaTeX

Machine Learning & AI: Machine Learning, Deep Learning, Neural Networks, Federated Learning, LLMs

Frameworks & Libraries: PyTorch, TensorFlow, Keras, scikit-learn, FastAPI, Streamlit, Pandas, NumPy

Tools & Technologies: Git, GitHub, Ollama, Power BI, MATLAB

Achievements

- Qualified JEE (Main) 2017
- Qualified GATE (MA) 2024
- Qualified JAM (Mathematics) 2021
- Qualified GATE (DA) 2026

Social Engagements

Sports-Engagements: Represented university football team at inter-college competitions.