Debarghya Saha

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Education

B.Tech, Computer Science & Business Systems, Meghnad Saha Institute of Technology	2022–2026
CBSE, Sudhir Memorial Institute	2020–2022
WBBSE, Calcutta Airport English High School	2007–2020

Skills

Programming : Python, TypeScript
ML Frameworks: TensorFlow, PyTorch, Scikit-Learn, OpenCV, Stable-Baselines3
DevOps & CI/CD: GitLab pipelines, Docker, Kubernetes, Terraform, Linux
Backend Development: Flask, FastAPI, Node.js, MongoDB, PostgreSQL, Django
Cloud Platforms: Google Cloud (Vertex AI, BigQuery)
Tools: Jupyter, Postman, MLflow, Hugging Face, Unsloth

Projects

- **LocalFlow-ML: Local MLOps system** - (GitHub)
  - Developed a full-scale MLOps platform locally with **12+ integrated tools**, simulating real-world enterprise pipelines in **Minikube**.
  - Automated model retraining and deployment using **GitHub Actions**, reducing manual intervention by **95%**.
  - Tracked **100% of training runs** with **MLflow**, ensuring reproducibility and model governance.
  - Real-time monitoring of API latency and accuracy using **Prometheus + Grafana**, maintaining **uptime of 99%**.
  - Achieved less than 1s model inference latency via optimized **FastAPI** deployment in Kubernetes.

- **Stock Forecasting Analytics Platform** - (Live App)
  - Designed a web-based tool to predict stock prices in **200 + companies** with **92–96% accuracy** using **Facebook Prophet**.
  - Reduced prediction latency by **60%** with asynchronous data pipelines and in-memory caching.
  - Implemented 5+ technical indicators (e.g., **SMA, EMA, RSI**) to support investment decisions.

- **Reinforcement Learning on Pokémon Red (Custom Gym)** - (GitHub)
  - Created a **custom OpenAI Gym environment** from a Pokémon Red ROM-hacked, enabling ML-based gameplay simulations.
  - Trained agents using **A2C, PPO** across **500,000+ episodes**, achieving a **battle win rate of 82%**.
  - Improved training efficiency by **35%** using GAE and game-engineered reward shaping.
  - Reverse-engineered game mechanics via disassembly and hex-level memory mapping to extract state/action spaces.

Awards

- **Smart India Hackathon Winner 2024** (Problem Statement 1742 - Ministry of Education) - Selected 315 winning teams among **88221 teams throughout the country the country**.

- **Smart India Hackathon Winner 2023 (Internal College Level)**

Certifications

- **DeepLearning.AI** – Linear Algebra for Machine Learning - (Verify)

- **IBM** – Machine Learning with Python - (Verify)

- **NVIDIA** – AI Infrastructure and Operations Fundamentals - (Verify)

- **Google** – Data Foundations - (Verify)

- **DeepLearning.AI** – Linear Algebra for Machine Learning - (Verify)

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- **Google** – Data Foundations - (Verify)