

# Aniket Ghosh

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## Education

### Northeastern University, Boston, MA, USA

Aug 2025 - May 2027

- M.S. in Artificial Intelligence (ML Concentration) - **15% merit scholarship**
- *Courses:* Foundations of AI, Algorithms, Interpretable AI, Applied Programming for AI
- **Teaching Assistant:** NLP grad course - teaching PyTorch & ML/DL labs (Prof. Tahmasebi)

### Institute of Engineering & Management, Kolkata, India

Jul 2020 - Jun 2024

- B.Tech in CS & Business Systems - GPA: 4/4 - **Ranked 2nd/180 - Director's Award**
- *Key Courses:* Data Structures, Operating Systems, Database Management, Neural Networks, NLP

## Technical Skills

**Programming Languages:** Python, C/C++, Java, JavaScript, SQL, HTML/CSS

**LLM & Gen AI:** RAG, ChromaDB, OpenRouter, OpenAI/Anthropic APIs, LoRA/QLoRA, Hugging Face

**AI Agents & Orchestration:** OpenAI Agents SDK, CrewAI, AutoGen, LangChain, LangGraph, MCP, Function Calling

**ML Frameworks:** PyTorch, TensorFlow, Keras, scikit-learn, YOLOv8, CNNs, Transformers, U-Net

**MLOps & Cloud:** AWS (Bedrock, SageMaker, Lambda, S3), Azure, GCP, Docker, Terraform, GitHub Actions, MLflow

**Specializations:** Computer Vision, Deep Learning, Medical Image Analysis, NLP, Explainable AI

## Experience

### Volunteer Educator & Mentor

2006 – May 2025

*The Hope Foundation, Kolkata*

- Taught mathematics and CS to 10 underprivileged students for 7 years; developed custom learning materials
- Created structured lesson plans breaking complex topics into manageable concepts; mentored beyond academics

### Researcher & Research Mentor

Mar 2024 – May 2025

*CMATER Lab, Jadavpur University, Kolkata*

- Developed custom ML pipelines for cell segmentation in histopathological images under Dr. Roy and Dr. Bhattacharjee
- Implemented preprocessing techniques using color quantization and DBSCAN clustering for densely packed cell detection
- Guided junior researchers in deep learning for medical imaging; conducted literature review sessions

### Research Intern

Feb 2023 – Jul 2023

*North-Eastern Hill University (Remote)*

- Contributed to developing Indian Sign Language dataset; defined quality criteria and annotation standards
- Analyzed existing datasets (Microsoft ASL, MNIST, Static ISL) to establish best practices for data collection

### Industrial Trainee

Dec 2022 – Jan 2023

*Novotel Kolkata*

- Facilitated IT system migration from local servers to Oracle cloud infrastructure and also supported for 1000+ rooms

## Projects

### Biomedical Knowledge Graph Link Prediction

GitHub

- Built link prediction on BioRED KG (3,783 entities, 6,214 relations) achieving **0.941 ROC-AUC**, outperforming TransE/RotatE/CoNn by 23%+; engineered PageRank & preferential attachment features via NetworkX.
- Developed multi-hop reasoning for explainable AI, generating 5-hop paths for drug-target and gene-disease predictions.

### Autonomous Multi-Agent Trading Simulation

GitHub

- Architected trading system with **4 AI traders, 6 MCP servers, 44 tools** using OpenAI Agents SDK; integrated Polygon.io API, Brave Search, and LibSQL persistent memory for autonomous market research and trade execution.
- Built Gradio dashboard for real-time P&L monitoring; implemented value investing, macro, risk parity trading strategies.

### Semi-Supervised Microscopy Image Segmentation

Research Project

- Developed cell segmentation pipeline combining K-means quantization, DBSCAN clustering, and Mask R-CNN for 85%+ overlapping cellular structures; tested on multiple cell lines at Jadavpur University.

## Professional Development & Certifications

### Completed Online Courses with Certificates

- **Deep Learning & AI:** Deep Learning A-Z 2024, Machine Learning: NLP in Python V2
- **ML Frameworks & Data Science:** Python for ML & Data Science Masterclass
- **LLM & GenAI Engineering:** AI Engineer Core Track, AI Engineer Agentic Track, MLOps: Deploy to AWS/Azure/GCP
- **Programming & Algorithms:** Data Structures & Algorithms C++, C++ Programming
- **Specialized Skills:** High-Performance Computing with Python 3x, Investing in Stocks Complete Course