Aniket Ghosh

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Education

Northeastern University, Boston, MA, USA   Aug 2025 - May 2027
- Master of Science in Artificial Intelligence (ML Concentration) - GPA: 4.0/4.0 - 15% Merit Scholarship
- *Courses:* Foundations of AI, Algorithms, Actionable Interpretable Methods, Applied Programming for AI

Institute of Engineering & Management, Kolkata, India   Jul 2020 - Jun 2024
- Bachelor of Technology in CS & Business Systems - GPA: 4.0/4.0 - **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

Teaching Assistant – Natural Language Processing (Graduate Course)   Aug 2025 – Present
Northeastern University, Boston   Instructor: Prof. Amir Tahmasebi
- Lead weekly lab sessions teaching 40+ students PyTorch fundamentals, ML/DL architectures, Word2Vec embeddings, and Named Entity Recognition implementations, resulting in 95% lab completion rates
- Grade assignments and provide detailed feedback on NLP projects; hold office hours to clarify transformer architectures and attention mechanisms, improving average student comprehension scores by 20%

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, achieving 85%+ accuracy on overlapping cellular structures across multiple cell lines
- Implemented preprocessing techniques using color quantization and DBSCAN clustering for densely packed cell detection, reducing false positive rates by 30% compared to baseline Mask R-CNN
- Guided 3 junior researchers in deep learning for medical imaging; conducted weekly literature review sessions that accelerated their project timelines by 2 months

Research Intern   Feb 2023 – Jul 2023
North-Eastern Hill University (Remote)
- Contributed to developing Indian Sign Language dataset by defining quality criteria and annotation standards; analyzed Microsoft ASL, MNIST, and Static ISL datasets to establish best practices, resulting in 15% improvement in dataset consistency

Industrial Trainee   Dec 2022 – Jan 2023
Novotel Kolkata
- Facilitated IT system migration from local servers to Oracle cloud infrastructure supporting 1000+ rooms; reduced system downtime by 40% during peak operations through optimized deployment scheduling

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/ ComplEx 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, and risk parity 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

Intelligent Traffic Sign Detection System   Published at AISC 2024
- Integrated YOLOv8 with custom CNN filtering layer to minimize false positives in cluttered Indian road environments; published in Springer's "Information and Communication Technologies" series