

ASSADUZZAMAN MUNNA

AI/ML Engineer — Computer Vision & GenAI Systems

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EDUCATION

North South University (NSU) — Dhaka, Bangladesh

Bachelor of Science in Computer Science and Engineering (Department of ECE)

2022 – May 2026

CGPA: 3.74 / 4.00

EXPERIENCE

AI Engineer

The Data Island — April 2026 – Sep 2026

- Promoted from Junior AI Intern to full-time AI Engineer; designed, deployed, and maintained production ML pipelines for enterprise infrastructure.
- Architected end-to-end multi-camera streaming pipelines handling live feeds with sub-100ms inference latency across distributed compute nodes.
- Integrated custom vision models with backend systems, boosting automated anomaly detection reliability and cutting manual review overhead.

Undergraduate Teaching Assistant (UGA)

North South University (ECE Dept.) — June 2025 – Present

- Mentor undergraduate students by facilitating technical lab sessions, grading core computing assignments, and guiding practical engineering coursework.

On-the-Job Training (AI Engineering)

Nippon AI Dojo 2025 (Chowa Giken & AI Samurai Japan) — Sep 2025 – Jan 2026

- Selected for an intensive engineering initiative focused on model compression, inference optimization, and deployment workflows under Japanese industry mentors.

SKILLS

- **AI, ML & Computer Vision:** PyTorch, TensorFlow, OpenCV, Vision Transformers, Multimodal AI, Knowledge Distillation, TensorRT, MLOps.
- **Generative AI & LLMs:** RAG Architectures, LangChain, Vector Databases (Chroma/FAISS), LlamaIndex, Model Evaluation, Fine-Tuning.
- **Cloud, DevOps & Data:** NVIDIA DeepStream, Docker, GCP, BigQuery, SQL, Linux (Ubuntu), FFmpeg, Git/GitHub Actions.
- **Software Engineering & Languages:** Python, C++, JavaScript, TypeScript, Dart, React.js, Next.js, FastAPI, REST APIs.

FEATURED PROJECTS

Real-Time Spatial-Temporal Anomaly Detection (Confidential) — AI Engineer

- Engineered and containerized an **NVIDIA DeepStream** pipeline processing concurrent RTSP streams at 30 FPS for automated industrial hazard detection.

Enterprise Video Management System (VMS) — System Architect

- Built an automated IP camera discovery and spatial network mapping backend in **Python/OpenCV**, centralizing feeds for large-scale enterprise monitoring.

Eval-Driven Agentic Codebase Q&A System — Personal Project

- Developed an autonomous **RAG** agent using LangChain and vector retrieval for codebase search, integrated with an evaluation harness for output fidelity.

PUBLICATIONS

SPECTRA: Explainable Shared–Private Multimodal Alignment for Joint Emotion Recognition and Sentiment Prediction

Moontaha Rawshan, Mohammad Ishzaz Asif Rafid, Al-Amin Rabbi, **Assaduzzaman Munna**, Riasat Khan. — *Submitted to Alexandria Eng. Journal*

- Designed a shared-private cross-attention framework, reaching **75.86%** emotion classification and **88.33%** sentiment accuracy across 4 benchmark datasets.

Bone Fracture Detection Using Vision Transformers: A Comparative Analysis of the PiT and CaFormer Models

Atikul Islam Munna, Md. Ibrahim Khalil, **Assaduzzaman Munna**, et al. — *2026 IEEE 2nd Int. Conf. on Secure IoT (SATC)*, DOI: 10.1109/SATC69565.2026.11542322

- Benchmarked Vision Transformers against CNNs on 4,083 clinical X-rays, demonstrating **97.51%** diagnostic test accuracy with PiT.

Hybrid CNN–MobileViT Model with Knowledge Distillation for Efficient Renal Calculi Detection
Assaduzzaman Munna, Mushfika Hossain, Anonto Bormon, Riasat Khan. — *Submitted to SPICSCON 2026. (Under Review)*

- Applied knowledge distillation to compress parameters by **18.5x**, attaining **99.80%** test accuracy with edge-optimized inference on an NVIDIA T4 GPU.

ACHIEVEMENTS & CERTIFICATIONS

Nippon AI Dojo 2025 (AI Training Program) — *Selected Participant*
Completed intensive technical training in advanced machine learning engineering and model deployment organized by Chowa Giken and AI Samurai Japan.