

Md. Asaduzzaman Shuvo

AI Engineer · Machine Learning

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PROFESSIONAL SUMMARY

AI/ML engineer and researcher specializing in RAG, LLM fine-tuning, low-resource NLP, multimodal AI, and computer vision. Built and deployed end-to-end AI systems using PyTorch, Hugging Face, FastAPI, Next.js, and hybrid retrieval. Authored research accepted at CVPR and EMNLP workshops, with hands-on experience in QLoRA, vision-language models, and AI evaluation.

EXPERIENCE

Undergraduate Researcher

United International University

Jan 2023 – June 2026

- Built and released 2 Bangla NLP datasets and benchmarked 10+ LLMs using QLoRA and 4-bit quantization.
- Developed Cultural Chain-of-Thought methods and a YOLO + vision-language framework and published at CVPR Workshop.

TECHNICAL SKILLS

AI/ML	PyTorch, TensorFlow, scikit-learn, Hugging Face	Programming	Python, C++, Java, JavaScript, SQL, Bash
LLM/GenAI	RAG, LangChain, Transformers, LoRA/QLoRA	Models	GPT, Claude, Llama, BERT, CLIP, ViT
CV/NLP	OpenCV, YOLOv8, NLTK, Prompt Engineering	Databases	PostgreSQL, MySQL, MongoDB, Pinecone
Tools	Git, Linux, Jupyter, Codex, Claude Code, Cursor	Deployment	FastAPI, REST APIs, Render, GitHub Pages

PROJECTS

Victor Von Doom – RAG Portfolio Assistant | *Next.js, TypeScript, RAG, GPT-4o-mini, REST API* [\[Live\]](#)

- Built and deployed a production RAG assistant that answers source-grounded questions about my research, projects, skills, education, and achievements. Implemented query routing, contextual retrieval, backend health monitoring, retry logic.

NBR VAT Assistant | *Python, bge-m3, ChromaDB, BM25, Cross-Encoder* [\[GitHub\]](#)

- Built a bilingual hybrid-RAG system using bge-m3, BM25, RRF, and cross-encoder reranking, improving Recall@5 from 41% to 59% and MRR from 0.30 to 0.51 while achieving 100% refusal accuracy.

AGRONEST – AI Agricultural Platform | *Next.js, FastAPI, YOLO, LLM, PostgreSQL* [\[GitHub\]](#)

- Built an AI agricultural platform combining YOLO-based crop disease detection with LLM-powered analysis and actionable recommendations. Integrated real-time weather data to support informed agricultural decision-making.

PUBLICATIONS

Polite on the Surface, Broken in Practice: A Curated Dataset for Fixing Generation and Register Failures in Low-Resource Bangla Text Generation

Developed an instruction-tuning dataset of 4,196 samples to benchmark Bangla LLM generation. Fine-tuned Open-source LLM models using LoRA and 4-bit NormalFloat quantization. [Accepted at an EMNLP 2026 Workshop.](#)

VisText-Mosquito: A Unified Multimodal Dataset for Visual Detection, and Textual Explanation on Mosquito Breeding Sites

Developed a multimodal dataset and framework combining object detection, segmentation, and vision-language models for automated mosquito breeding-site analysis. [Published at a CVPR 2026 Workshop](#)

WADE: A Reasoning-Annotated Benchmark for Multi-Instance Floating-Waste Grounding with Compact VLMs

Developed a benchmark of 2,167 real-world images with 13,608 bounding boxes across 10 waste categories. Evaluated six vision-language models and improved Qwen3-VL-2B recall from 2.48% to 23.39% using QLoRA. [Under Review](#)

When a Name Is Not a Name: A Benchmark Dataset and Distilled Reasoning for Culturally Entangled Bangla Homographs in Low-Resource LLMs

Built a 1,516-sentence Bangla benchmark dataset on [HuggingFace](#) and evaluated open-source LLMs with zero/few-shot and Cultural Chain-of-Thought prompting. Fine-tuned 1–3B models using QLoRA for distilled cultural reasoning · [Accepted at an EMNLP Workshop](#)

EDUCATION

United International University (UIU)

B.Sc. in Computer Science & Engineering, CGPA: 3.60/4.00

Dhaka, Bangladesh

2022 – 2026

Govt. K.C. College

Higher Secondary Certificate (HSC) – Science

Jhenaidah, Bangladesh

ACHIEVEMENTS

Project Show Awards	1st Runner-Up, DBMS Lab (2024); 2nd Runner-Up, System Analysis & Design Lab (2025); 3rd Runner-Up, Microprocessor Lab (2025)
Academic Reviewer	COLM Efficient Reasoning and Context Beyond Window Workshops; EMNLP Grounding Language Models Workshop; ECCV Computer Vision for Ecology Workshop (2026)
Certification	AI Fluency for Students, Anthropic (May 2026)