

Abu Bakar Siddik Nayem

AI/ML Engineer | Computer Vision | LLMOps

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🇩🇪 German Work Permit

Professional Summary

AI/ML Engineer with 6+ years shipping production systems in computer vision, LLMOps, and recommendation at scale. Built a spatiotemporal ball detection model at **92% accuracy** (vs. 45% YOLOv8 baseline); architected a recommendation pipeline for **60M+ Grameenphone subscribers** at sub-100ms latency; led a **\$246K Gates Foundation** livestock CV system across 16,643 field deployments. Author of 7 peer-reviewed papers including *Nature Scientific Reports* (2025). Currently pursuing M.Sc. AI at Brandenburg University of Technology.

Technical Skills

ML & DL	PyTorch, HuggingFace Transformers, PEFT (LoRA), scikit-learn, ONNX, timm, LangChain, SentenceTransformers
Computer Vision	DINOv2, RF-DETR, YOLOv8/v5, DeepLabV3+, MMSegmentation, EfficientNet, OpenCV, GANs
LLMOps & RAG	RAG pipelines, NL2SQL, FAISS, Milvus, PGVector, streaming SSE, prompt engineering
MLOps & Infra	Docker, Terraform, Kubernetes, GitOps, GitHub Actions, GitLab CI/CD, Weights & Biases, CVAT
Cloud & Backend	GCP (Batch, Cloud SQL, GCS, KMS), AWS (EC2, S3, SageMaker), FastAPI, gRPC, Celery, RabbitMQ
Compliance	GDPR, HIPAA, ISO 27001, ISO 9001

Work Experience

Software Engineer (Machine Learning)

Aug 2025 – Present

TRACKBOX.BE

Antwerp, Belgium (Remote)

- Designed spatiotemporal ball detection model (RF-DETR + DINOv2 + 4-layer Temporal Transformer) trained on 26K+ samples via GCP Batch — **92% accuracy at 10px** vs. 45% YOLOv8 baseline; F1 0.9032. Tracked 25+ variants with W&B.
- Deployed self-hosted CVAT on GCP with Terraform IaC: multi-region (EU + Singapore), Cloud SQL, GCS, KMS, Let's Encrypt SSL, Cloudflare DNS automation.
- Built NL2SQL analytics QA system with 7-iteration prompt engineering cycle, lifting query success from **20% to 95%** on 293K-row soccer tracking datasets.

Senior Artificial Intelligence Engineer

Nov 2024 – Jul 2025

Think Flagship IXP

San Antonio, TX, USA (Remote)

- Architected a multi-stage short-form video recommendation system for Grameenphone (**60M+ subscribers**): two-tower retrieval via Milvus + gRPC microservices + re-ranking, achieving **sub-100ms** end-to-end latency.
- Delivered Horizon shoppable video platform for Bangladeshi eCommerce brands, driving measurable add-to-cart uplift with AI-powered content personalisation.
- Built multilingual content moderation (English, Bangla, Banglish) and managed Kubernetes GitOps deployment (GitLab CI/CD, SAST, protected environments).

Artificial Intelligence Engineer

Oct 2023 – Oct 2024

AinoviQ IT Limited

Dhaka, Bangladesh

- Built production GAN-based virtual try-on system (garment segmentation → pose estimation → warping → texture blending) deployed on GCP for **thousands of daily users**; full MLOps loop from data pipeline to FastAPI inference endpoint.

Lead Machine Learning Engineer

Acme AI Ltd.

Dec 2021 – Feb 2024

Dhaka, Bangladesh

- Led **Gates Foundation (\$246K)** livestock CV system: DeepLabV3+ segmentation → pose estimation → weight regression, **92% accuracy**, deployed across 16,643 field sessions; released **12K-image Kaggle dataset** (4K+ downloads).
- Led cancer detection research (Australia Awards grant) on oral X-ray/CT scans; owned full ML lifecycle across multiple projects (data acquisition, annotation QC, training, deployment on GCP/AWS).
- Achieved GDPR, HIPAA, ISO 27001, and ISO 9001 certifications for the ML team's data governance practices.

Research Associate

Center for Computational & Data Sciences, IUB

May 2019 – Nov 2022

Dhaka, Bangladesh

- Co-created **BOLM** — pixel-level LULC dataset: 4,392 km², 891M annotated pixels, 11 classes over Dhaka metro. Published in *Nature Scientific Reports* (2025) and accepted at *IEEE ICIP 2025*.
- Published deep learning LULC benchmarks across 7 developing-world cities: avg. **91.78% accuracy** with DeepLabV3+ (*Sensors*, MDPI 2021).

Education

M.Sc. Artificial Intelligence

Brandenburg University of Technology Cottbus-Senftenberg

Apr 2025 – Present

Cottbus, Germany

B.Sc. Computer Science

Independent University, Bangladesh

Sep 2015 – Apr 2019

Dhaka, Bangladesh

Selected Publications (7 peer-reviewed) — Google Scholar

- Paul, O., **Nayem, A.B.S.**, et al. “BOLM high resolution land use and land cover dataset...” *Nature Scientific Reports* 15, 37689 (2025).
- Rahman, A.K.M.M., ..., **Nayem, A.B.S.**, et al. “Applying state-of-the-art deep-learning methods to classify urban cities...” *Sensors* 21(22):7469 (2021).
- Niloy, F.F., **Nayem, A.B.S.**, et al. “A novel disaster image data-set and characteristics analysis using attention model.” *IEEE ICPR 2020*.
- **Nayem, A.B.S.**, et al. “LULC Segmentation of RGB Satellite Image Using FCN-8.” *3rd SLAAI-ICAI* (2020).

Languages

English (C1) | German (A2) | Bengali (Native)