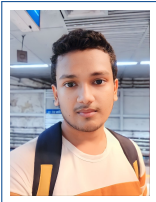


Akshar Nath Gorain

Systems Engineer & AI Researcher

Kolkata, India | workforakng@gmail.com | +91 90656 01445
[linkedin.com/in/ak-n-g](https://www.linkedin.com/in/ak-n-g) | github.com/workforakng | workforakng.github.io



PROFESSIONAL SUMMARY

Undergraduate Systems Engineer and AI Researcher (B.Tech CSE, 3rd Year @ Techno India University) specializing in Computer Vision, model compression (Knowledge Distillation, INT8 Quantization), edge machine learning, and full-stack distributed systems. First author and presenter at IEEE SPACE 2026, International Champion at COMSYS Hackathon 7, and Top 5 Best Poster awardee at IndiSetu 2026. Proven record of architecting sub-millisecond trading infrastructure, on-device biometric screening systems, and production web platforms.

PUBLICATIONS & RESEARCH

Progressive Knowledge Distillation for Military Vehicle Classification on Edge Devices **IEEE SPACE 2026**
Bangalore, India
Co-Author — *Space, Aerospace and Defence Conference*

- Researched CNN-to-CNN and CNN-to-Transformer multi-teacher distillation with INT8 quantization for low-power mobile deployment. Accepted and presented at IEEE SPACE 2026.

Liver Tumor Segmentation from CT Scans using SLIC Superpixel Swin-UNet **IndiSetu 2026**
Kolkata, India
Co-Author — *National AI in Healthcare Summit*

- Developed SLIC consensus post-processing with fine-tuned Swin-UNet, outperforming MedSAM and SAM2-Tiny on the LiTS benchmark. Awarded **Top 5 Best Poster**.

Multiscript Handwritten Character Segmentation & Recognition **COMSYS 2026**
Czech Republic
Lead Author — *Škoda Auto University, Czech Republic & COMSYS Trust*

- Architected a hybrid vision pipeline (YOLOv8-MSER with ConvNeXt ensemble). Won **Rank #1 (International Champion)** at COMSYS Hackathon 7 (Score: 0.755).

EDUCATION

Techno India University **Kolkata, India**
Bachelor of Technology in Computer Science and Engineering (CSE) — CGPA: 7.84 *Aug 2024 – Jun 2028*

- **Academic Track:** Current Verified CGPA: 7.84 (Sem 1 SGPA: 7.67, Sem 2 SGPA: 8.49 / CGPA: 8.08, Sem 3 SGPA: 7.37).
- **Core Coursework:** Machine Learning, Deep Learning, Data Structures, Algorithms, Database Systems, Cloud Computing.

Guru Gobind Singh Public School **Bokaro, India**
Senior Secondary (CBSE XII: 77.83%) & Secondary (CBSE X: 84.60%) *Apr 2020 – May 2023*

WORK EXPERIENCE

Techno India University **Kolkata, India**
Undergraduate AI Researcher *Aug 2024 – Present*

- Researched efficient deep learning architectures for edge inference, focusing on multi-teacher Knowledge Distillation and INT8 quantization.
- Engineered SLIC superpixel-enhanced Swin-UNet medical segmentation pipeline for liver CT scans, benchmarking against LiTS.

CURAA **Kolkata, India**
Mobile App & Machine Learning Engineer *Nov 2025 – Present*

- Architecting cross-platform Flutter application with native 60 FPS rendering pipeline for an intelligent companion care platform.
- Built an on-device audio feature extraction and inference pipeline for low-latency collar-based vocalization classification.

AICTE Virtual Internship Programs **Remote**
Applied AI & Systems Engineering Intern *Dec 2025 – Present*

- Developed enterprise RAG, vector search, and Model Context Protocol (MCP) agent workflows (Cohort 19 Enterprise AI).
- Built applied ML/DL computer vision pipelines via Google for Developers 8-week program (Grade: **O / Outstanding**).
- Completed coursework and hands-on tracks in Data Engineering (AWS), Network Security (Palo Alto), and Automation (IBM SkillsBuild).
- Deployed predictive machine learning regression models for 6 environmental water pollutants using historical sensor datasets.

TECHNICAL SKILLS

Languages: Python, C++, Rust, TypeScript, JavaScript, SQL, Dart, Solidity, Bash

Machine Learning & Vision: PyTorch, OpenCV, YOLOv8, ConvNeXt, EfficientNet, Swin Transformer, MedSAM, MobileSAM, Knowledge Distillation, INT8 Quantization, TensorRT, TFLite

Enterprise AI & Backends: Retrieval-Augmented Generation (RAG), Vector Search, Model Context Protocol (MCP), Next.js 14, FastAPI, Flask, Node.js, Express.js

Databases & Cloud: AWS (Data Engineering Certified), Google Cloud Platform, PostgreSQL, MySQL, Prisma, Firebase, Docker, Git, Linux

Mobile & Embedded: Flutter, Kotlin, Jetpack Compose, CameraX, BLE, ESP32-S3

PROJECTS

Delta Terminal — Institutional Crypto Options Terminal

Rust, Python, Flask, AsyncIO

Systems & Quant Architect

github.com/workforakng

- Architected an institutional-grade crypto options trading terminal in Rust and Python, processing live BTC/ETH derivatives with sub-millisecond execution latency while maintaining an ultra-low 90MB RAM footprint.
- Implemented five-gate regime filtering (ADX, IV Rank, Volatility Ratio) with Δ -THETA harvesting algorithms and headless CLI agent integration.

HeartSense — Contactless Vital-Signs Biometric Screening

Kotlin, Jetpack Compose, MediaPipe

Lead Engineer

github.com/workforakng/heartsense

- Engineered a contactless rPPG biometric monitor using Kotlin, Jetpack Compose, and MediaPipe, achieving 100% edge-computed screening of 5 vitals (HR, SpO₂, Respiration, HRV, Stress) in 30 seconds at a continuous 60 FPS.
- Deployed CameraX AE/AWB-locked capture, POS/CHROM color difference DSP, adaptive Kalman filtering, and native clinical PDF generation.

EdgeRF — RF Drone-Controller Identification for Edge Devices

PyTorch, INT8, Edge AI

Lead Researcher

Jun 2026 – Present

- Developed an edge RF signal classification framework achieving 99.89% accuracy across 17 RC controllers with a single 0.59 MB INT8 quantized model running at ~2 ms per CPU inference (paper in preparation for IEEE RadarConf 2027).
- Identified and mathematically proved train/test distribution leakage in published DroneRF benchmarks, establishing rigorous evaluation baselines.

ShareBite Platform — Food Rescue Engine

Next.js 14, PostgreSQL, NextAuth.js

Full-Stack Lead

sharebite-platform.vercel.app

- Built a production food rescue platform aligned with UN SDG 2 (Zero Hunger) using Next.js 14 App Router, PostgreSQL, Prisma, and NextAuth.
- Designed a real-time surplus food inventory ledger with automated expiry calculation, role-based safety verification, and instant claim dispatch.

VaaniKavach — On-Device AI Voice Clone Scam Defense

PyTorch, TFLite, Android

Co-Developer

May 2026 – Present

- Created on-device voice armor defense against AI-generated deepfake voice scams via distilled AASIST anti-spoofing models running on TFLite.
- Integrated multilingual coercion pattern recognition (Bengali/Hindi) and SHA-256 tamper-evident forensic audio logging.

HONORS & AWARDS

- **Champion (Rank #1) — COMSYS Hackathon 7:** International Championship by Škoda Auto University & COMSYS Trust (Score: 0.755), Jun 2026.
- **Top 5 Best Poster Award — IndiSetu 2026:** Recognized at the National AI in Healthcare Summit for liver tumor segmentation research, Jul 2026.
- **3rd Prize (USD 200) — HexaFalls 2 (Accio Relevance):** Major League Hacking (MLH) Hackathon, JIS University, Team Traction, Jul 2026.
- **3rd Prize — Made in JIS (Celeb Edition 2026):** Multi-track product engineering competition, Kolkata, Team CURAA, Aug 2026.
- **Featured Research Coverage — Tech Darshi:** Featured article on Edge-AI and hardware accelerator research, Jadavpur University, Sep 2026.

CERTIFICATIONS

- **AWS Academy Graduate:** AWS Academy Cloud Data Engineering Certification (Dec 2025).
- **Google Cloud Skill Badges:** Develop GenAI Apps with Gemini & Analyze Images with Cloud Vision API (2025).
- **Meta (Coursera):** Programming in Python Professional Specialization (Expected Nov 2026).
- **AICTE EduSkills Badges:** Generative AI, Cloud Data Pipelines, and Network Security (2025 – 2026).