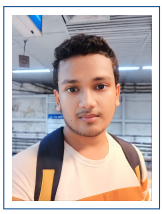
Akshar Nath Gorain



Systems Engineer & AI Researcher

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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. Co-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.

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

PUBLICATIONS & RESEARCH

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

- 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**
Co-Author — National AI in Healthcare Summit — *Kolkata, India*

- 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**
Lead Author — Škoda Auto University, Czech Republic & COMSYS Trust — *Czech Republic*

- 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: **7.69*** — *Aug 2024 – Jun 2028*

- **Academic Track:** Current Verified CGPA: 7.69 (Sem 1 SGPA: 7.67, Sem 2 SGPA: 8.49 / CGPA: 8.08, Sem 3 SGPA: 7.37 / CGPA: 7.84, Sem 4 SGPA: 7.22).
- **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*

- Efficient deep learning for edge inference (multi-teacher distillation, INT8 quantization); SLIC superpixel-enhanced Swin-UNet liver CT segmentation vs LiTS.

CURAA — **Kolkata, India**
Mobile App & Machine Learning Engineer — *Nov 2025 – Nov 2026*

- Cross-platform Flutter app (native 60 FPS) for intelligent companion care; on-device audio feature extraction & inference for collar-based vocalization classification.

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

- Enterprise RAG, vector search & MCP agent workflows (Cohort 19); applied ML/DL CV pipelines via Google for Developers (Grade **O**).
- Data Engineering (AWS), Network Security (Palo Alto), Automation (IBM SkillsBuild); predictive ML for 6 water pollutants.

PROJECTS

Delta Terminal — Institutional Crypto Options Terminal **Rust, Python, Flask, AsyncIO**
Systems & Quant Architect *github.com/workforakng*

- Institutional crypto options terminal (Rust/Python): live BTC/ETH derivatives, sub-ms execution, <90MB RAM; five-gate regime filter (ADX, IV Rank, Vol Ratio), Δ-THETA harvesting, headless CLI.

HeartSense — Contactless Vital-Signs Biometric Screening **Kotlin, Jetpack Compose, MediaPipe**
Lead Engineer *github.com/workforakng/heartsense*

- Contactless rPPG biometric monitor (Kotlin, Compose, MediaPipe): 5 vitals in 30s at 60 FPS, 100% on-device; CameraX, POS/CHROM DSP, Kalman, clinical PDF.

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*

- On-device voice-clone defense: distilled AASIST anti-spoofing (TFLite), multilingual coercion recognition (Bengali/Hindi), SHA-256 forensic audio logging.

EdgeECG — Edge ECG Platform **ESP32-S3, Rust, Kotlin/Compose, BLE**
Co-Developer

- Battery-powered 3-lead ECG screening, 100% on-device: dual AD8232 + ESP32-S3 Rust firmware, BLE to a Kotlin/Compose app, graded PDF reports.

Legilimens — Classroom Confusion Radar **FastAPI, Next.js, SQLite, Docker**
Co-Creator

- Real-time confusion radar: hybrid BM25 + vector retrieval over SQLite to personalized voice explanations, professor analytics dashboard.

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):** JIS University, Team Traction, Jul 2026.
- **3rd Prize — Made in JIS (Celeb Edition 2026):** Multi-track product engineering competition, Kolkata, Team CURAA, Aug 2026.
- **Techdarshi Magazine:** Co-authored article “Edge-AI Chip: AI Without the Cloud”, Sept 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).
- **Coursera (Oct 2026):** Programming in Python – Meta; Deep Learning Essentials – University of Pennsylvania; Ethical Hacking with Kali Linux – EDUCBA.
- **AI and Data Analytics (Green Skills):** AICTE – Edunet – Shell India (Jun–Jul 2025).
- **AICTE EduSkills Badges:** Generative AI, Cloud Data Pipelines, Network Security, AI-ML (Cohort 18, Grade O) (2025 – 2026).