Sankur Kundu

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SUMMARY

Stanford researcher and ML Engineer delivering €2.1M+ cost savings through production ML systems processing 2M+ records/day at 99.5% accuracy. Completed research at **Stanford SLAC National Accelerator Laboratory (official recognition November 2025**). MIT certified with expertise in MLOps, cloud infrastructure (5x GCP Professional), and hardware AI optimization.

EXPERIENCE

Research Intern | Stanford University - SLAC National Accelerator Laboratory | Remote | Aug 2025 - Nov 2025

- Selected for prestigious Stanford Arclight (SLAC) research internship through **Department of Electrical Science and Stanford Centre** for Professional Development; got **Dean's recognition November 2025** for "passion, determination, and professionalism"
- Designed and validated specialized **ML models for High-Energy Physics data analysis**, achieving real-time particle detection and pattern recognition in complex experimental accelerator environments at SLAC's world-renowned particle physics facility
- Implemented **FPGA-based acceleration pipeline for low-latency**, high-throughput processing of experimental physics data, integrating production-grade MLOps practices with specialized scientific computing requirements while collaborating remotely with Stanford faculty

Machine Learning Engineer Intern | VALCON | Utrecht, Netherlands | Jun 2025 - Aug 2025

- Architected production ML pipelines integrating **5+ enterprise systems** processing **2M+ records/day** for European retail clients; achieved **99.5% accuracy** and reduced deployment time **88% (3 weeks → 4 days)** using Kafka, dbt, Databricks
- Delivered **€2.1M cost savings (18% reduction)** and **12% retention boost** through demand forecasting and churn models serving **500K+ daily transactions**; created Power BI dashboards for C-suite decision-making

PROJECTS

DETEK - AWS Security Intelligence | https://github.com/SankurTW/Detek | **120K Events/Day, €420K Breach Prevention**

- Built serverless anomaly detection (Lambda, S3, EventBridge, Isolation Forest) at **91% precision**; reduced **MTTD 98% (4hrs→8min)** and infrastructure costs **73%** through automated threat response

TSMC 3nm Edge AI Optimization | https://github.com/SankurTW/AI-Model-Compression-for-TSMC-3nm-Chips-Disaster-Classification | **8.2x Compression, 76% Latency Reduction**

- Compressed MobileNetV3 **8.2x (14.2→1.73MB)** maintaining **94.1% accuracy**; reduced latency **76% (203→49ms)**, power **62%**; built AutoML NAS pipeline accelerating optimization **93% (3 weeks→2 days)**

GCP IoT Predictive Maintenance | https://github.com/SankurTW/Predictive-Maintenance-for-IoT-GCP-Deployed-Real-Time-Optimized | **93.4% Accuracy, €102K Annual Savings**

- Architected end-to-end IoT platform processing **58K events/day (200+ devices)** with **93.4% accuracy** predicting failures **48hrs advance**; reduced downtime **62%**, saved **€102K annually**

TECHNICAL SKILLS

Languages: Python, Go, Java, C++, SQL, JavaScript, R | **Specialized:** Edge AI, Hardware Co-Design (FPGA), Anomaly Detection
ML/AI: PyTorch, TensorFlow, Scikit-learn, XGBoost, Hugging Face, MLflow, Feast, ONNX, Model Compression, AutoML
MLOps: Docker, Kubernetes, Helm, ArgoCD, Terraform, CI/CD (GitLab/Jenkins),DataDog
Cloud: GCP (Vertex AI, BigQuery, Pub/Sub, GKE), AWS (SageMaker, Lambda, S3, ECS), Azure (Databricks, AKS)
Data Engineering: Kafka, Spark, Airflow, Redis, PostgreSQL, MongoDB, Snowflake | **Frameworks:** FastAPI, Django, Flask, Spring Boot | **Analytics:** Power BI, Tableau, Pandas, NumPy

EDUCATION

Bachelor of Technology in Computer Science and Engineering | IEM Kolkata | Expected Apr 2026
MIT Professional Education | **Industry 4.0 (366 hrs, 12 months) + Applied Data Science** | Oct 2022 - Oct 2025
Faculty: Prof. Olivier de Weck, Prof. Bruce Cameron, Prof. Abel Sanchez, Prof. John R. Williams, Prof. Munther A. Dahleh
Stanford University | Code in Place: **CS106A Programming Methodologies** | Apr 2025 - Jun 2025
Faculty: Prof. Christopher Piech (Assistant Professor, Computer Science)

CERTIFICATIONS

MIT: Industry 4.0 (366hrs), Applied Data Science | Stanford: CS106A

LEADERSHIP & ACHIEVEMENTS

Stanford Arclight (SLAC) Researcher | ML research for particle physics completed; Dean's official recognition November 2025
2nd Place, NIT Trichy National Hackathon 2024 | ₹50,000 prize competing against 100+ teams
Technical Mentor, Google DSC VIT Mumbai | Trained 150+ students—85%+ satisfaction; mentees at Flipkart, Oracle