Satoru Akita

AI Solutions Architect | Edge AI & Cloud Integration Specialist

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📍 Greater Tokyo Area, Japan

Professional Summary

Solution-oriented AI Engineer with **7+ years of ML/AI experience** and proven expertise as a Forward-Deployed Engineer at Sony Semiconductor Solutions. Specialized in **edge-cloud AI system integration**, enabling customers to design, deploy, and operate intelligent vision systems. Successfully led international partnerships (Raspberry Pi Foundation, Lund AB) and delivered end-to-end AI solutions from requirements gathering to production deployment. Strong background in **customer-facing technical architecture**, cloud platforms (GCP, AWS, Azure), and full-stack development (Python, Next.js, FastAPI).

Key Achievements:
- 6+ years architecting edge-cloud AI solutions for enterprise customers including logistics warehouses
- Led international collaboration with Raspberry Pi Foundation and Sweden-based Lund AB, managing technical discussions and OSS publication
- Developed and released multiple AI camera sample applications and tools used by partner companies
- World Champion in international biomolecular design competition (BIOMOD 2015)

Professional Experience

Sony Semiconductor Solutions Corporation

AI Solutions Architect & Edge Sensing Platform Engineer | Tokyo, Japan
April 2019 – Present (6 years)

AI Solutions Architecture & Customer Engagement (2021-Present)

Role: Forward-Deployed Engineer for AITRIOS AI Camera Platform

Customer Solutions & Technical Leadership:
- Architected and deployed edge-cloud AI systems for enterprise customers, conducting on-site requirements gathering at logistics warehouses and manufacturing facilities
- Designed hybrid solutions integrating edge AI inference with cloud analytics (Azure/AWS), optimizing for bandwidth efficiency and data privacy
- Led end-to-end solution delivery from customer requirements analysis → system design → implementation → deployment → operational support
- Conducted technical workshops and hands-on training sessions for partner companies

System Architecture Highlights:
- **Edge-Cloud Integration:** Designed distributed systems with AI inference at edge (IMX500 cameras), metadata streaming to cloud, and on-premises NAS integration (Synology

Surveillance Station)
- **Multi-Cloud Deployment:** Implemented AITRIOS platform integrations with Azure and AWS, optimizing data pipelines for real-time metadata processing
- **Privacy-First Design:** Architected solutions keeping image data on-premises while leveraging cloud for analytics and insights

Sample Application Development (Team Lead):
- Led 5-person team developing open-source sample applications using AITRIOS platform
- **Tech Stack:** Next.js (frontend), FastAPI (backend), PostgreSQL (database)
- Managed OSS publication process including security vulnerability scanning, malware checks, and license compliance
- Coordinated with international teams for code review and compliance requirements

International Partnership - Raspberry Pi Foundation & Lund AB (Sweden):
- **Role:** Technical lead for collaborative sample application development and GitHub publication
- Conducted technical discussions in English regarding software architecture, stack optimization, and integration strategies
- Explained Sony's OSS compliance requirements and guided publication process
- Successfully delivered open-source application to global developer community
- **Impact:** Strengthened Sony-Raspberry Pi Foundation partnership and expanded AITRIOS ecosystem

Key Technologies: IMX500 AI Camera, ESP32, Raspberry Pi, Python, Next.js, FastAPI, PostgreSQL, Azure, AWS, Docker

Edge AI Application Development (2020-2021)

- Developed AI applications for IMX500 edge AI sensor integrated with Raspberry Pi
- Extended SDK functionality and implemented embedded AI solutions
- Optimized ML models for edge deployment with resource constraints

AI Camera Systems & Computer Vision (2019-2020)

CES 2019 Demo - 3D Pose Estimation for Yoga Guidance:
- Developed 3D skeleton tracking system using ToF + RGB imaging
- Implemented real-time pose estimation model for yoga posture assistance
- Exhibited at Consumer Electronics Show (CES) 2019

Sign Language Recognition System:
- Built ML model for sign language detection from ToF sensor images
- Developed complete application pipeline from data preprocessing to inference

Other Technical Contributions:
- Embedded firmware and image processing for AI cameras (2 years)
- On-premise system infrastructure setup and operations (2 years)
- Circuit evaluation and hardware testing for AI cameras (1 year)

Technical Skills

Machine Learning & AI:
- Computer Vision, Edge AI, Deep Learning (7+ years hands-on experience)

- Model Deployment, Inference Optimization, Edge-Cloud ML Pipelines
- TensorFlow, PyTorch (familiar), OpenCV

Programming Languages:
- Python (6 years) - Primary language for ML/backend development
- JavaScript/TypeScript (3 years) - Full-stack web development
- C++ (2 years) - Embedded systems and performance-critical code

Cloud Platforms & Architecture:
- Google Cloud Platform (Certified Professional Cloud Architect)
- AWS (Certified Solutions Architect - Associate) - 3 years
- Azure (AI Fundamentals certified) - 2 years
- Edge-Cloud distributed system design and integration

Development & MLOps:
- Full-Stack Development: Next.js, FastAPI, React, Node.js
- Databases: PostgreSQL, NoSQL (familiar)
- DevOps: Docker, CI/CD, GitHub Actions
- Security: Vulnerability scanning, OSS license compliance, malware detection

Hardware & Embedded Systems:
- Edge AI Sensors: IMX500, ESP32, Raspberry Pi
- Semiconductor processes, Circuit evaluation
- 3D CAD (SolidWorks)

Languages:
- **Japanese:** Native
- **English:** Business Proficient (TOEIC 800)
- Technical collaboration with international partners
- Presentations at international competitions
- Academic paper authorship

Education

Tohoku University | Sendai, Japan

Master of Engineering in Robotics | April 2017 – March 2019
- MEMS sensors, semiconductor processes, data utilization, machine learning
- Internships: Sony, Mercari, B.U.G.

Bachelor of Engineering in Mechanical & Aerospace Engineering | April 2013 – March 2017
- Research in molecular robotics using DNA nanotechnology
- Published in Small journal (2017)
- Founded Whole Brain Architecture Young Researchers Association (Tohoku Chapter) in 2018
- Developed ML-based projects at multiple hackathons

Certifications

Cloud & Infrastructure:
- Google Certified Professional Cloud Architect
- AWS Certified Solutions Architect – Associate
- Microsoft Certified: Azure AI Fundamentals

AI & Machine Learning:
- TensorFlow Developer Certificate

Security & Information Processing:
- Information Processing Safety Support Specialist (Japanese National Certification)
- Fundamental Information Technology Engineer

Honors & Awards

🥇 **BIOMOD 2015 – Grand Prize (World Champion)**
International biomolecular design competition. Awarded 1st place globally for designing a synthetic molecular robot using DNA. Presented research in English.

🥉 **iCAN'14 – 3rd Place Worldwide**
5th International Contest of Applications in Nano-Micro Technology. Presented wearable haptic navigation system.

🧠 **Sechack365 (2017)**
Selected for elite one-year cybersecurity training program hosted by NICT (National Institute of Information and Communications Technology).

🚀 **SXSW Hackathon Award (2018)**
Corporate prize for AI-powered life log camera concept at South by Southwest conference.

Selected Publications

1. Froemel, J., **Akita, S.**, & Tanaka, S. (2020). "Simple Device to Measure Pressure..." Micromachines, 11(12), 1109. Link
2. Uchida, T., et al. (2017). "Revolving Vernier Mechanism Controls Size of Linear Homomultimer." Small, 13(44). Link

Professional Activities

- **Community Leadership:** Co-founded Whole Brain Architecture Young Researchers Association (Tohoku Chapter, 2018)
- **Continuous Learning:** Active participant in SW conferences, hackathons, and tech communities
- **Open Source:** Contributed to AITRIOS platform sample applications on GitHub
- **Technical Blog:** Regular contributor sharing ML/AI insights at akisatooo.hatenablog.com

Why Google Cloud AI?

I am particularly drawn to Google Cloud's Generative AI vision and the opportunity to leverage my edge AI expertise in cloud-native AI solutions. My experience architecting customer-facing AI systems aligns perfectly with Google's mission to democratize AI technology. I am excited to apply my Forward-Deployed Engineer background to help customers unlock the potential of Google's Generative AI platform, combining my technical depth with proven customer success delivery.

Portfolio: wwlapaki310.github.io
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