

MULUGETA SOLOMON ABATE

Software Engineer

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SUMMARY

Software engineer with production experience in full-stack development, ML systems, and cloud infrastructure. Built and deployed end-to-end platforms on AWS (FastAPI, React/Next.js, PostgreSQL) serving real users in public health and disaster response. Strong foundation in system design, data pipelines, and Python/TypeScript. MEXT scholar, published researcher, A2SV/Google alumnus.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, Go, SQL, C++, C

Backend & Infra: FastAPI, Node.js, Celery, PostgreSQL, Redis, Docker, Git, Linux, CI/CD, REST APIs

Frontend: React, Next.js, Tailwind CSS, MapLibre GL

Cloud & DevOps: AWS (Lambda, EC2, S3, SQS, RDS, API Gateway), System Design, Microservices

ML & Data: PyTorch, TensorFlow, CUDA, Scikit-learn, NumPy, SciPy, YOLO, OpenCV, Data Pipelines

EXPERIENCE

Sora Technology Tokyo, Japan

Software Engineer — ML & AI Oct 2024 – Present

- **Architected the SORA platform backend on AWS**—FastAPI in private subnets, Lambda, API Gateway, SQS, RDS PostgreSQL, EC2 inference, and S3/MapServer serving web, mobile, and drone clients.
- **Built FloodSight**, a full-stack flood simulation platform (FastAPI + Celery + Next.js/MapLibre GL) with physics-based modeling, JWT auth, i18n, and **146+ automated tests**—deployed for disaster preparedness in Mozambique.
- **Engineered a waterbody AI detection system** for drone imagery identifying mosquito breeding sites at **>85% precision/recall**, directly supporting malaria prevention across multiple countries.
- **Designed evaluation frameworks** (mAP, IoU, F1) that exposed model blind spots and drove a **20% accuracy improvement** through targeted retraining.
- **Built automated data pipelines** (cleaning, merging, GeoJSON-to-TIFF indexing, batch uploads to AWS) that cut iteration cycles by **40%**, improved data accuracy by **30%**, and saved **40+ hrs/month**.

Software / ML Intern Jul 2024 – Oct 2024

- **Optimized drone path-planning algorithm**, reducing data acquisition time by **33%** and lowering per-mission costs.
- **Migrated detection pipeline from YOLOv5 to YOLOv8**, achieving **22% accuracy boost** with lower inference latency.

EDUCATION

Ritsumeikan University Kyoto, Japan

M.Sc. in Robotics — CGPA 4.3/5.0 | Teaching Assistant Sep 2022 – Sep 2024

Addis Ababa Science Technology University Addis Ababa, Ethiopia

B.Sc. in Electromechanical Engineering — CGPA 3.81/4.00 Sep 2016 – Nov 2021

Africa to Silicon Valley (A2SV) — Backed by Google

1,500+ hours of competitive programming and software development. 80+ alumni placed at Google, Bloomberg, Amazon.

PROJECTS & PUBLICATIONS

Robo-Line Annotator — Desktop + web tool that labeled **5,462 images (600K+ line segments)** for wireframe detection research. 2024

RSJ2024 Publication — Co-authored paper on semantic line detection and scene-awareness with novel segmentation approach. Sep 2024

MEXT Scholarship — Japanese Government full scholarship for graduate studies.