SOLOMON ESHUN

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AI/ML Engineer with a strong **Software Engineering** foundation and proven ability to design and deploy intelligent systems for real-world applications. Experienced in building advanced pipelines, scalable APIs, and autonomous agents for data processing, computer vision, and LLM integration. Skilled in Python, PyTorch, TensorFlow, and FastAPI, with additional strengths in full-stack development, system design, and deploying AI solutions at scale.

PROFESSIONAL EXPERIENCE

EnBW Energie Baden-Württemberg AG *(via Ishango AI, London UK)*   **Karlsruhe, Germany**
L3 MLOps Engineer - *Remote*   **December 2025-Present**

- Supporting enterprise-scale MLOps initiatives for a leading European energy provider, focusing on production ML infrastructure, deployment pipelines, and operational reliability.
- Working within regulated, high-availability environments to enable scalable model deployment, monitoring, and retraining workflows.

Noeud   **Accra, Ghana**
Founding Machine Learning Engineer(R&D) - *Part-Time Remote*   **October 2025-Present**

- Leading research and prototyping of real-time financial forecasting systems using Temporal Fusion Transformers and deep time-series models.
- Designing end-to-end pipelines from data ingestion to deployment and continuous retraining for live market prediction systems.
- Exploring probabilistic forecasting, regime detection, and multi-horizon prediction for trading and risk analytics.

MinoHealth AI Labs   **Accra, Ghana**
Machine Learning Engineer   **October 2024-December 2025**

- Built *Moremi Deep Research Agent*, achieving a RACE score of *46.3* on the **DeepResearch Bench**(ranked 3/18 agents), demonstrating advanced autonomous reasoning and research capabilities.(**moremi.ai**)
- Engineered *Moremi Bio Co-Researcher*, *Moremi AI Agent* and *Moremi Search*, deployed on the production platform(**moremi.ai, blog**) and used in real-world research workflows.
- Architected the *Moremi Bio* autonomous agent, the core technology behind *4 co-authored 2025 research publications.*
- Designed a containerised bioinformatics tool using Docker + FastAPI, integrating *20+* heterogeneous tools (C++, Python, Java, Perl) into one reproducible pipeline.
- Built a scalable distributed task orchestration system with Celery, RabbitMQ, and Redis to dynamically schedule heterogeneous bioinformatics workloads, enabling concurrent multi-hour molecular dynamics simulations and real-time protein/SMILES processing across shared worker pools.
- Developed a high-throughput molecular validation and ranking system capable of processing *20,000+ proteins and SMILES molecules* in a single, multi-day run.
- Created a React-based 3D molecular analytics interface using 3Dmol.js for visualising drug discovery candidates in real time.

KaraAgro AI   **Accra, Ghana**
AI Engineer & Drone Mapping - *Part-Time Contract*   **January 2025-December 2025**

- Deployed a YOLOv12 computer vision model for cashew stress detection across *42 farms in 28 communities* as part of a GIZ, MOVE and FAIR FORWARD funded CADI AI pilot.
- Led end-to-end drone mapping operations, collecting and annotating a *148GB* agricultural dataset on Roboflow.
- Trained farmers on integrating AI-powered agronomic insights to improve crop health and yield.

Runmila AI Institute   **Accra, Ghana**
AI Instructor - *Remote Contract*   **July 2025-September 2025**

- Delivered the 2025 Generative AI & Python Summer Camp for students from *Montserrat, Grenada, and Dominica*.
- Taught hands-on sessions on Python programming, large language models, vision-language models and AI agents.

PUBLICATION & RESEARCH(Co-Authored)

- **Moremi Bio Agent: Using *Neisseria meningitidis* Reference Data For The Double Blinded Validation of A General Purpose Biology-Trained Reasoning Model for Pathogen and Antigen Discovery** | *Submitted for review (2025)* | Collaborative research with <u>Imperial College London, Infectious Disease</u>, London, UK
- <u>**Moremi Bio Agent: Leveraging Agentic Large Language Model for the Discovery of Broad-Spectrum Antibiotics for Enterobacteriaceae - doi: https://doi.org/10.1101/2025.08.21.671656**</u>
- <u>**Can Large Language Models Design Biological Weapons? Evaluating Moremi Bio - arXiv:2505.17154**</u>
- <u>**Moremi Bio Agent: Application of A Foundation Model and End-to-End Automation in the Design and Validation of Monoclonal Antibodies Targeting Plasmodium falciparum Invasion Complex - doi: https://doi.org/10.1101/2025.02.12.637967**</u> | Collaborative research with <u>West African Centre for Cell Biology of Infectious Pathogens(WACCBIP)</u>, University of Ghana, Accra

TECHNICAL SKILLS

- **Programming, AI & Data Science:** Python · JavaScript/TypeScript · Java · C++ · SQL · MQL5 · Pandas · NumPy · Scikit-learn · PyTorch · TensorFlow
- **Distributed Systems, Data Engineering & Deployment:** Celery · RabbitMQ · Redis · Docker · DigitalOcean · FastAPI · Node.js · ETL Pipelines · API Development · Data Modelling & Database Design · Scalable Services · Large-Scale Validation (20k+ molecules/run)
- **Databases:** MySQL · PostgreSQL · MongoDB · SQLite
- **Machine Learning, AI & Research:** Agentic AI Systems · Retrieval & Search Pipelines · Time-Series Forecasting · Supervised & Unsupervised Learning · Deep Learning (Transformers, LLMs, ViTs, VLMs , CNNs, LSTMs) · Reinforcement Learning · Computer Vision (YOLO) · Model Evaluation & Backtesting · Benchmarking & Experimental Design
- **Web & Software Engineering:** React · Next.js · Node.js · Prisma · REST APIs · System Design · Agile · Scrum · Extreme Programming (XP)
- **Version Control & Collaboration:** Git · GitHub

VOLUNTEERS, CONFERENCES AND SEMINARS

- **Tech & Beyond Expo |** *Academic City University*: Presented on Software Engineering in the Age of AI.
- **Global Code 3-Weeks Bootcamp 2025 |** *University of Cape Coast - Ghana*: Mentored participants in Python, IoT, and AI integration, supporting capstone projects.
- **Ghana Data Science Summit 2025 (IndabaX) |** *Ashesi University, Berekuso - Ghana*: Guided participants through hands-on LoRA-based fine-tuning and VLM exercises.

AI & SOFTWARE PROJECTS

- **Quantitative XAU/USD Session Strategy *(Independent Research - Time-Series Modelling)*:**
  - Built an end-to-end pipeline to benchmark XGBoost, LSTM, and Transformer architectures for financial market direction and return prediction.
  - Implemented full workflow: data acquisition via MetaTrader5 API, feature engineering, modelling, evaluation, and backtesting. **<u>GitHub</u> | <u>Hypothesis A Result - Medium</u>**
- **Building a Large Language Model from Scratch *(A Public Learning Journey)*:**
  - Developing a functional LLM from first principles to explore transformer architectures, attention mechanisms, tokenization, and training workflows.
  - Documenting the entire process through open-source code, visualizations, and educational articles to make advanced AI concepts accessible. **<u>Github</u> | <u>Medium</u>**
- **Sonu AI – Offline Plant Disease Detection App(*Hackathon Project*):**

- Developed an AI-powered offline PWA for crop disease detection and treatment guidance, optimized for Ghanaian farmers.
- Implemented ONNX for on-device inference, Leaflet for outbreak mapping, and Next.js + Tailwind for mobile UI.
- Achieved 96% accuracy with full offline capability and deployed live within 5 days. **Live App** | **Devpost** | **GitHub**
- **DS.AlgoDeck – Interactive Data Structures & Algorithms Platform** *(Open-Source Educational Platform)*:
  - Built an open-source platform for learning data structures through interactive visualizations; currently implementing an AI-powered code generator via the Gemini API. **GitHub** | **Homepage** | **Live Playground**

EDUCATION

UNIVERSITY OF CAPE COAST   **Cape Coast, Ghana**
B.Ed. Computer Science, Second Class Honours (Upper Division) — CGPA: 3.2/4.0   **2020-2024**

CERTIFICATIONS & AWARD(S)

- **Certifications:**
  - GlobalCode Certificate, 3-week Programming Camp (Raspberry Pi & Python) | 2023
  - Professional Certificate, Robotics, Arduino & IoT | 2023
- **Award(s):** Best Participant Robotics and IoT TransforME Project | 2023

LANGUAGES

- **Languages:** English