

JEFF ANGINA MBOYA

✉ jangina.mboya@gmail.com [in linkedin.com/in/jeffmboya/](https://www.linkedin.com/in/jeffmboya/) [🌐 jeffmboya.com](https://jeffmboya.com)

SKILLS

- **Languages:** Python (NumPy, scikit-learn), C / C++, Go, Rust, SQL / PostgreSQL
- **Embedded & Hardware:** Embedded C, Zephyr RTOS, PCB Design, TIA Portal / PLC, NB-IoT / BLE / Wireless M-Bus
- **Robotics & Control:** Sensor fusion (IMU, encoders), PID control, computer vision, edge ML deployment, federated learning
- **Systems & Infrastructure:** Docker, Kubernetes, gRPC, MQTT, Protocol Buffers

EDUCATION

Jomo Kenyatta University of Agriculture and Technology (JKUAT)

Nairobi, Kenya

Bachelor of Science in Mechatronics Engineering; Second Class Upper Honours

Sept 2017 – Jun 2023

- Thesis: *Autonomous Rover for Adaptive Bird Deterrence* — real-time computer vision pipeline for pest bird detection

WORK EXPERIENCE

Abstract Machines, France | *Go · Python · Kubernetes · vLLM · WASM*

Feb 2026 – Present

Software Engineer II

Remote

- Integrated **vLLM** and **Ollama** as inference backends for Cube AI (cube.ultraviolet.rs) inside **AMD SEV-SNP** / **Intel TDX** enclaves with **remote attestation**, measuring **<10%** throughput overhead versus an unprotected baseline for Tier-1 clients.
- Surfaced an **OpenAI-compatible API** supporting **LLaMA**, **Mistral**, and **Qwen** with **continuous batching** (vLLM), enabling Tier-1 clients to adopt confidential LLM inference without re-engineering their existing integrations.
- Built the **Python** FL pipeline (sklearn to m2cgen to WASM) in Propeller (propeller.absmach.eu) compiling trained classifiers into edge-deployable binaries, coordinating training rounds across **\$4 ESP32-S3** nodes with **95%** ARM target compatibility.
- Owned Kubernetes release operations for the **30+** service Magistrala platform (magistrala.absmach.eu), cutting rollout time **5×** while sustaining **0% downtime** across **400+** deployments serving **13+** global partners.

Octavia Carbon, Kenya | *Process Engineering · System Design*

Jun 2023 – Feb 2026

Deputy Head of Research & Development Team

On Site, Nairobi, Kenya

- Co-developed the technical R&D roadmap and due diligence framework for the DAC+Storage plant, directly securing **\$3.1M** in Series A funding.
- Generated a **4.6x** return on a **\$137K** R&D budget, catalyzing **\$630K+** in follow-on capital to deploy a 9-unit pilot fleet in the Rift Valley.
- Directed a **5-person** team to **0% downtime** across **400+** test cycles on a **2-ton/year** pilot, validating the technology case for a **30×** scale-up to a **60-ton/year** field unit.
- Identified regeneration cycle time as the unit-economics bottleneck; redesign across **3 teams** cut cycle time **83%** and increased daily CO₂ throughput **3.6x**.
- Led a **7-person** build-vs-buy analysis replacing third-party controllers with a proprietary stack, reducing CAPEX **63%**.
- Conducted **RCA** on a **2-year** CO₂ purity failure and led the resulting process and machine redesign, achieving **99.9%** product specification and clearing the final technical gate for the company's first commercial-scale deployment.

HONORS & AWARDS

- **PCT Patent Grants** | **World Intellectual Property Organization (2025)**: Secured **3 international PCT patents** protecting core technologies critical to achieving sub-\$100/ton direct air capture at commercial scale.
- **Regional Winner** | **IBM Call for Code (Middle East & Africa, 2021)**: Won the MEA region out of **500,000+** developers across **180 nations**, securing **\$5,000** and IBM technical partnership support.
- **2nd Runners-up** | **Huawei Seeds for the Future (Kenya, 2021)**: Sole national recipient; recognized for applying gamified **AI** to early detection and diagnosis of eye cataracts in children.

PROJECTS

- **Scripli** (scripli.com) — a behavioral text classifier that detects AI-generated writing across **6 signals** and issues cryptographic *Provenance Scores*, deployed to users across **7 countries** (Kenya, Nigeria, South Africa, the United States, Australia, Germany, and Georgia).
- **Radar** (github.com/JeffMboya/radar) — an arXiv pipeline that ranks **50+** papers per run by build potential, using parallel **Claude Haiku** extraction per paper and **Claude Sonnet** cross-document synthesis.

PUBLICATIONS & RESEARCH

- **First Author** — “Improving Small Pest Bird Detection in YOLOv5s for Autonomous Bird Deterrent Systems” 2022
— custom fine-tuning for small-object detection in agricultural ML
- **Co-Author** — “Simulation and Airflow Experimentation of a Multi-Layer Adsorbent Chamber for Enhanced Direct Air Capture Efficiency” 2025