Oluwadare James

Machine Learning · Drone Engineering · Geospatial Intelligence

james.o.oluwadare@gmail.com | github.com/eng-james-o | eng-james-o.github.io

PROFILE

Data scientist and drone engineer building AI systems, software and unmanned aerial systems. Background in Mechanical Engineering (Aeronautics), working across UAV design, machine learning and geospatial intelligence to turn field data into decisions. Chief UAV Design Engineer at Hoverfleet and founder of AeroHub.

EXPERIENCE

Chief UAV Design Engineer — Hoverfleet

Dock-based drone delivery infrastructure for African cities · hoverfleet.org

- Airframe, propulsion and payload design for 3–8 kg deliveries over 15 km dock-to-dock ranges
- Reliability engineering for heat, humidity and dense urban airspace
- Autonomy and safety architecture: geofencing, dual GPS, full audit trail
- Supporting NCAA five-phase certification

Founder — AeroHub

Drone research, capacity building and operator software

- Building AeroOps: mission planning, compliance and fleet management software for drone operators
- Custom UAS development for research and industry partners
- STEM and pilot training programmes building local drone capacity

Independent Consultant — Aerial Survey & Geospatial

- End-to-end survey missions: flight planning, airspace and risk assessment, field execution, data QA
- Photogrammetric deliverables: orthomosaics, DSM/DTM, point clouds and 3D meshes

SELECTED PROJECTS

- **Spec-AI — Counterfeit Detection Engine** — Multi-stage vision/OCR/ML engine verifying alcohol product authenticity: ResNet50 embeddings, KNN brand identification, per-brand one-class SVM experts, OCR label verification.
- **4G-Controlled Surveillance Drone** — Fixed-wing UAS commanded over LTE for beyond-line-of-sight operations, with MAVLink tunnelling, failsafes and a custom ground station.
- **Pothole Detection API** — Multi-model YOLO inference service with tunable confidence/IoU thresholds, annotated output and latency metrics.
- **UK Stock Market Forecasting** — CNN-LSTM and GRU models forecasting FTSE-100 movement from 15 global financial indices.
- **SA Deforestation Monitoring** — Earth Engine time-series analysis of forest loss, river-network change and carbon stocks across South Africa.
- **Airfm / Drone Conceptual Design Software** — Desktop tools for airfoil analysis and conceptual drone sizing with propeller performance comparison.

TECHNICAL SKILLS

- **Languages:** Python, JavaScript, QML, MATLAB, Arduino/C++
- **ML & Data:** PyTorch, TensorFlow, Keras, scikit-learn, YOLO/Ultralytics, OpenCV, Pandas, NumPy, MLflow
- **Geospatial:** Google Earth Engine, QGIS, ArcGIS, Pix4D, Agisoft Metashape, remote sensing, photogrammetry
- **UAV:** ArduPilot, Pixhawk, MAVLink, Mission Planner, QGroundControl, SolidWorks, airframe & avionics design
- **Other:** Git, Docker, Qt/PySide, FastAPI, SQLite

EDUCATION

BEng Mechanical Engineering (Aeronautics)