

Mohammad Machaka

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PROFILE

Systems-minded software and cloud engineer (AWS SAA-C03) deepening my systems perspective through the ISAE-SUPAERO SEN programme (2025-2026). Recent work: migrating legacy data/map services, building Python 3.11 pipelines (Airflow, GDAL/Rasterio, GEE), and putting non-regression checks and observability in place. I aim for clarity, reliability, and testable interfaces. Availability: Mar-Aug 2026 (4-6 month internship).

SKILLS

SYSTEMS ENGINEERING

Requirements & ICDs • V-model • V&V • ISO/IEC 15288 • SysML/Capella* • DOORS* • Traceability

DATA / GEOSPATIAL

Airflow/ETL orchestration • Rasterio/GDAL • Google Earth Engine • Data cleaning & automation

CLOUD / DEVOPS

AWS • Terraform • Kubernetes • Docker • Helm • GitHub Actions • GitLab • Jenkins • IaC & CI/CD

SOFTWARE ENGINEERING

Python 3.11/FastAPI • Node/Express (TypeScript) • C++ • REST API design • MongoDB • Redis • SQL

OBSERVABILITY & QA

Prometheus • Grafana • Alerting & SLOs • Dashboards • Unit/Integration & non-regression testing

CERTIFICATIONS

AWS Solutions Architect — Associate (SAA/C03)

LANGUAGES

English (Fluent) • French (Advanced) • Arabic (Fluent)

EXPERIENCE

GREEN PRAXIS | CLOUD & DATA ENGINEER • PERMANENT

Jan 2025 -- Present • Aix/en/Provence, FR

- Built and maintained Python 3.11 Airflow DAGs to ingest Sentinel/Landsat scenes (cloud mask, reprojection, mosaics via Rasterio/GDAL) and persist metadata.
- Re/architected static tiles to on-demand rendering (FastAPI + Google Earth Engine + Redis): storage ↓ 80%; map refresh <30 min; ingestion throughput ↑×6.
- Deployed Prometheus/Grafana/Alertmanager; added integration checks and alerting covering critical paths (supporting SLOs and non/regression).

Stack: AWS (EKS/S3/IAM), Terraform, Kubernetes, Docker, Helm, Airflow, FastAPI, Google Earth Engine, MongoDB, Redis, GitHub Actions

AIRBUS | DATA ENGINEER • APPRENTICESHIP/INTERNSHIP

Jan 2023 -- Jun 2024 • Toulouse (Saint/Martin), FR

- Standardised HR reporting across 5 regions; packaged deployments and test steps, cutting dashboard release time by ~80%.
- Automated data validation and quality gates; defined SLAs/ownership with stakeholders to improve reliability and timeliness.
- OPTIMATE (automated taxiing) exchange: defined end-to/end data/flow architecture and interfaces/SLAs; developed the pipeline, monitoring, and runbooks for handover.

MUREX SYSTEMS | SOFTWARE ARCHITECT • PROJECT LEAD

May 2021 -- Jan 2022 • Beirut, LB

- Designed a log/analysis platform surfacing 50+ previously unseen error patterns; improved time-to/root/cause.
- Shipped an MVP with modular components and automated CI/CD; led a 3/developer Scrum team (scope, reviews, delivery).

EDUCATION

ISAE-SUPAERO | MASTÈRE SPÉCIALISÉ® SYSTEMS ENGINEERING (SEN)

Sep 2025 -- Oct 2026 (expected) • Toulouse

- Focus: MBSE (SysML/Capella), requirements/ICDs, system architecture, V&V, lifecycle (ISO/IEC 15288).

UNIV. TOULOUSE III — PAUL SABATIER | M.Sc. COMPUTER SCIENCE FOR AEROSPACE

Sep 2021 -- Jun 2024 • Toulouse

AMERICAN UNIV. OF BEIRUT | B.Sc. COMPUTER SCIENCE • MINOR BUSINESS ADMINISTRATION

Sep 2017 -- Jun 2020 • Beirut

- LCPC Competitive Programming — Runner/Up; Valedictorian 2017/18.

PROJECTS (SELECTED)

SUNSPEAR — Systems Engineer: CONOPS; needs→requirements; ICD skeletons; V&V approach; review packets (SRR/SDR/like).

HydroART — Systems Engineer: Mission architecture; preliminary budgets; interface control; verification matrix.