

# Mohammad Machaka

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## PROFILE

Systems-minded **Cloud & Data Engineer** who builds reliable, observable data platforms on **AWS/Kubernetes**. Shipped geospatial pipelines and on-demand tile services (Airflow, **GEE**, FastAPI) with **IaC**, CI/CD, and **Prometheus/Grafana**—cutting storage by ~80%, boosting ingestion **6×**, and dropping P95 latency to ~220 ms. I focus on clear interfaces, measurable SLOs, and operability.

## SKILLS

### CLOUD & DEVOPS

AWS (EKS/EC2/S3/IAM) · Kubernetes · Docker · Terraform · Helm · GitHub Actions · IaC/GitOps

### DATA & PIPELINES

Apache Airflow · ETL · STAC · Rasterio/GDAL · Google Earth Engine

### BACK END

Python/FastAPI · Node/Express (TypeScript) · REST · AuthN/AuthZ · Caching (Redis)

### DATASTORES

MongoDB · SQL/PostGIS

### OBSERVABILITY

Prometheus · Grafana · Alertmanager · SLOs/Alerting

### PROGRAMMING

Python · C++ · C# · TypeScript

### SELECTED PLATFORMS

Earth Observation, Tiles, Map APIs

## CERTIFICATIONS

**AWS Solutions Architect – Associate (SAA-C03)** — 09/2025

## LANGUAGES

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

## EXPERIENCE

### GREEN PRAXIS | CLOUD & DATA ENGINEER · PERMANENT

Jan 2025 -- Aug 2025 · Aix-en-Provence, FR

**Objective:** Operate a cloud/native EO data platform and internal API with strong reliability/observability.

- Built **15+ Airflow DAGs** for STAC/driven ingestion (S3) and GDAL/Rasterio processing; throughput **8→48 scenes/h**.
- Re/architected static tiles to **on/demand GEE + FastAPI** with Redis caching; storage **~80%**, refresh **<30 min**.
- Introduced **Prometheus+Grafana** (24 dashboards, 35 alerts) reaching **95%** coverage and **SLA ≥ 98%**.
- Refactored Express API (JWT→Paseto, tests, rate limiting); **P95 600 ms → 220 ms**.

**Tech:** Python, Airflow, FastAPI, Node/TypeScript, Redis, AWS (EKS/S3/IAM), Terraform, Kubernetes, Prometheus, Grafana

### AIRBUS | DATA ENGINEER · WORK/STUDY

Jan 2023 -- Jun 2024 · Toulouse, FR

**Objective:** Accelerate analytics delivery and integrate high/rate data for programs incl. OPTIMATE.

- Engineered C++/Python pipelines for high/rate streams (up to GB/s) in OPTIMATE context.
- 80% faster** dashboard deployment (1 week → 1 day) via Python ETL and automation.
- Unified HR datasets across **5 regions**; improved accuracy through validation/merging.

**Tech:** C++, Python, Workday, PostGIS, Postman

### MUREX SYSTEMS | PROJECT LEAD (SOFTWARE)

May 2021 -- Jan 2022 · Beirut, LB

**Objective:** Deliver a log/analysis demonstrator for a high/throughput trading platform.

- Built PoC detecting **>50** previously unseen error patterns; accelerated root/cause analysis.
- Led a 3/dev Scrum team; shipped MVP on Kubernetes with Terraform/Jenkins CI.

**Tech:** Python, Jenkins, Docker, Terraform, Kubernetes

## EDUCATION

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

Sep 2025 -- Oct 2026 (exp.) · Toulouse, FR

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

### UNIVERSITÉ TOULOUSE III – PAUL SABATIER | M.Sc. COMPUTER SCIENCE FOR AEROSPACE

Sep 2021 -- Jun 2024 · Toulouse, FR

### AMERICAN UNIV. OF BEIRUT | B.Sc. COMPUTER SCIENCE · MINOR BUSINESS

Sep 2017 -- Jun 2020 · Beirut, LB

- 2<sup>nd</sup> place – LCPC Competitive Programming (2019); Valedictorian 2017/18.