

# Mohamed RIZKI

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Engineer in Geomatics and Data Science with international academic and professional experience in France and Morocco. Passionate about the energy transition, geospatial technologies, and data-driven innovation. Looking for a full-time opportunity where I can apply my skills in geospatial development, spatial data analysis, and automation to contribute to impactful projects in environment, energy, or urban intelligence.

## EDUCATION

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### ENSG-Géomatique

Paris, France

*Geomatics Engineer – Specialization: Geo Data Science*

*Sep 2023 – Sep 2025*

*Final Year Project: Improvement of the Geographic Information System of ENGIE CRIGEN Lab*

### Hassan II Agronomic and Veterinary Institute

Rabat, Morocco

*Master in Space Science and Technology – Specialization: GNSS*

*Sep 2017 – Sep 2019*

*Final Year Project: Integration of GNSS and Inertial Navigation System in Aerial Photogrammetry*

### Faculty of Sciences Semlalia, Cadi Ayyad University

Marrakech, Morocco

*Bachelor of Science in Physical Matter – Specialization: Modern Physics*

*Sep 2014 – Jun 2017*

## SKILLS

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**Languages:** C++, Java, Python, JavaScript, MATLAB, R, HTML, CSS

**Technologies:** Qt, Flask, Node.js, React.js, MongoDB, PostgreSQL, Git, Docker, Kubernetes, Linux, Socket.IO

**Libraries:** ArcPy, PyQGIS, GeoPandas, Shapely, Rasterio, GDAL/OGR, Pyproj, NumPy, Pandas, Matplotlib, Leaflet.js

**Geospatial Tools:** ArcGIS Pro, ArcGIS Enterprise, QGIS, FME Workbench (Certified by Safe Software), GeoServer, Experience Builder, PostGIS, AutoCAD

## EXPERIENCE

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### ENGIE Lab CRIGEN

Paris, France

*GIS Engineer*

*Oct 2024 – Oct 2025, Work-Study Program*

- Designed and developed interactive GIS web applications using ArcGIS Experience Builder, Dashboards, and Story Maps to visualize environmental and social indicators.
- Created, styled, and managed geospatial layers (ArcGIS Pro/Enterprise); published services and maintained spatial databases (PostgreSQL + ArcSDE).
- Developed Python scripts to automate data processing, formatting, and spatial-temporal visualization workflows.
- Researched and integrated climate, environmental, and societal datasets relevant to R&D projects.
- Provided user support: troubleshooting, tool improvements, technical assistance, and presentations.
- Occasionally contributed to machine learning initiatives (e.g., classification tasks) and the design of advanced spatial analysis protocols.

### TERIA - EXAGONE

Paris, France

*Software Engineer*

*May 2024 – Sep 2024, Internship*

- Engineered Python automation scripts for real-time GNSS data ingestion from TCP/IP streams (NTRIP/RTCM), with built-in error recovery ensuring continuous and reliable data flow.
- Designed and optimized PostgreSQL/PostGIS databases to store and manage GNSS data daily.
- Developed a RESTful API to assess and deliver data quality of nearby GNSS stations based on user location.

### Circet Morocco

Casablanca, Morocco

*FTTH/GIS Engineer*

*Jan 2020 – Aug 2023, Full time*

- Produced detailed FTTH network maps on cadastral backgrounds: digitizing, projecting, editing, and publishing deployment and redesign plans.
- Modeled network infrastructure (manholes, poles, boxes, cables, active/passive equipment) in GIS platforms (ArcGIS, QGIS, NetGeo), structuring thematic layers.

- Integrated, cleaned, and harmonized data from AutoCAD drawings, field surveys, and client databases to build exploitable geospatial datasets.
- Created and maintained PostGIS databases organizing telecom layers for consultation, spatial analysis, and cartographic editing.
- Delivered technical and thematic maps to support planning, deployment, and validation phases (PDF, WebMaps, cartographic reports).
- Coordinated with field and engineering teams to ensure alignment between GIS data and on-site reality; contributed to As-Built documentation.

## SEPRET

Rabat, Morocco

*Master's Thesis Project*

*May 2019 – Sep 2019, Internship*

- Compared Precise Point Positioning (PPP) and Differential GNSS processing for aerial image georeferencing, demonstrating higher accuracy with differential methods.
- Studied the integration of GNSS/INS in aerial triangulation adjustment and evaluated direct georeferencing as an alternative to traditional workflows.
- Conducted experimental tests on a block of 105 aerial images over 8 flight lines with varying ground control point configurations.
- Confirmed that GNSS and INS integration significantly reduces the need for ground control points while maintaining high georeferencing accuracy.

## PROJECTS

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### IsoComp – Isochrone Comparison Web Application | [GitHub](#)

- Web application comparing isochrones from IGN, Mapbox, Here, and Ciril Group APIs using Leaflet and Flask.
- Computed metrics like response time, area coverage, routing accuracy, and Hausdorff distance to assess API performance.
- Exported results as GeoJSON and generated detailed comparison reports in PDF format.
- Technologies: Flask, GeoPandas, Shapely, Leaflet.js, FPDF, HTML/CSS, JavaScript, REST APIs

### GeoEngie – ArcGIS Automation Library | [GitHub](#)

- Python library streamlining repetitive ArcGIS Pro tasks via ArcPy, improving consistency and productivity.
- Automated tasks include updating data sources, applying pop-up templates, and enforcing decimal precision.
- Technologies: Python, ArcPy, ArcGIS Pro

### Real-Time GNSS Quality API | [GitHub](#)

- API delivering real-time GNSS station quality indicators to users based on live RTCM messages.
- Backend scripts processed 24/7 GNSS data via TCP/IP and updated PostGIS with quality metrics.
- Used Flask-SocketIO to send updates every second to client apps.
- Resulted in a scientific publication in XYZ Journal.
- Technologies: Flask, Socket.IO, PostgreSQL/PostGIS, Python (Pyproj, Geopy, psycpg2)

### Localized Genealogy – Interactive Data Collection App | [GitHub](#)

- Developed interactive PHP/JavaScript form to collect genealogical and geographic data for kinship mapping.
- Integrated Leaflet.js for mapping and used MySQL for storing structured family data.
- Deployed on MAMP and used FlightPHP as the lightweight routing framework.
- Technologies: PHP, FlightPHP, JavaScript, Leaflet.js, MySQL, HTML/CSS

### Experience Builder – Drop-Down liste of layers Widget | [GitHub](#)

- Created a widget that dynamically lists and displays Web Map layers in Experience Builder using dropdown.
- Ensures layer visibility toggling and auto-zoom based on layer extent.
- Technologies: React, TypeScript, ArcGIS Experience Builder SDK, JavaScript

### EasyExport – QGIS Automated Map Export Tool | [GitHub](#)

- Python script for exporting QGIS layouts as PDFs with control over overlap, layout selection, and exclusions.
- Automates layout extent splitting and batch exports based on user parameters.
- Technologies: Python, QGIS, PyQGIS

## LANGUAGES AND INTERESTS

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**Languages:** Tamazight/Arabic (Native), French (C1 - TCF), English (B2 - TOEIC)

**Interests:** Boxing, Running, Data Visualization, GeoAI