







Yazeed Faisal Almuhlaki

Spatial Data Scientist

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SUMMARY

Spatial Data Scientist and GeoAI practitioner applying deep learning, spatial statistics, and Earth observation imagery to predictive systems. Focused on Vision 2030-aligned applications in geospatial intelligence, environmental risk, and remote sensing.

EDUCATION

King Saud University (KSU) 09/2023 – 06/2027 | Riyadh, Saudi Arabia

Bachelor of Science in Computer Information Systems – Data Science Track

Tuwaiq Academy 11/2025 – 01/2026 | Riyadh, Saudi Arabia

Bootcamp – Spatial Data Science (200 hours)


SKILLS

Languages & Databases: Python, SQL, PostGIS, PostgreSQL | **Spatial & Remote Sensing:** GeoPandas, rasterio, xarray, Shapely, QGIS, Google Earth Engine | **Machine Learning & Deep Learning:** scikit-learn, PyTorch, PySAL, Spatial Cross-Validation, Swin-UNet, YOLOv8, OpenCV

CERTIFICATIONS

- Spatial Data Science Bootcamp – Tuwaiq Academy
- Linear Algebra for Machine Learning and Data Science – DeepLearning.AI
- Programming for Data Science with Python – Udacity

PROJECTS

KSA Dust Health Risk – Dust Respiratory Exposure Index (DREI)  03/2026 – 03/2026

Independent Spatial Data Science Project

- Built a 1 km-resolution Dust Respiratory Exposure Index across 147 Saudi governorates by fusing 5 years of NASA MERRA-2 aerosol data with WorldPop 2020 population rasters.
- Quantified that 40.7% of Saudis live in the 10 most dust-exposed governorates, with Al Khubar at peak exposure (77.6/100).
- Stack: Python, xarray, rasterio, GeoPandas, NASA MERRA-2, WorldPop.

Hathir (حاذر) – GeoAI Hazard Detection Platform  11/2025 – 01/2026

Capstone Project – Tuwaiq Academy Spatial Data Science Bootcamp · Team of 4

- Co-built an AI-powered hazard detection platform for Saudi Arabia mapping 3,037 hazard points across 13 regions (sinkholes, cave collapses, dam risks, drought, wildfires).
- Developed the computer vision module: Swin-UNet for sinkhole segmentation and YOLOv8 for real-time hazard detection, trained on Earth observation imagery pulled directly from Google Earth Engine.
- Stack: Python, PyTorch, Google Earth Engine, PostGIS, Swin-UNet, YOLOv8, OpenCV.

Spatial Patterns in CMS Nursing Home Ratings  02/2026 – 02/2026

Independent Spatial Machine Learning Project

- Predicted low-rated nursing facilities across 14,575 U.S. sites using CMS data and exploratory spatial data analysis (Global Moran's I, LISA cluster detection) to capture spatial autocorrelation.
- Built classification models (Logistic Regression, Random Forest) evaluated with spatial block cross-validation to prevent spatial leakage; tuned Random Forest reached **87.9% recall** on low-rated facilities.
- Stack: Python, GeoPandas, scikit-learn, PySAL, spatial block CV.

LANGUAGES

- Arabic – Native
- English – Professional