

Muhammad Bilal

Geospatial Analyst

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Experience

Geospatial Sciences Intern

Feb 2025 – Present

United Nation Development Programme

Remote

- Developing an Interactive Map of Migration Activity in Guatemala.
- Developing a Dashboard Visualizing Global Disaster Events.
- Training a Deep Learning Model to detect Barricades and roadblocks from Aerial Imagery.

Geospatial Analyst

May 2023 – Aug 2023

Riscognition

Munich, Germany

- Project: Visualization of near-real-time lightning data on the web using the Maplibre JavaScript library and overlay with landcover and forest layers to access the effect of lightning on forest fires for the SAFERs Project.
- Transformation of lightning data into PMtiles format using the Tippecanoe command-line tool for efficient web visualization.
- Configured the Mini.io cloud platform for hosting lightning data, landcover, and forest datasets.
- Implementation of hotspot functionality to visualize lightning strike intensity at different locations in Europe.

Deputy Manager GIS

Jan 2020 – Oct 2022

Proppure Digital Solutions

Islamabad, Pakistan

- Managed centralized database and dashboard related to real estate services.
- Visualized big data using PostGIS databases and Geoserver for mapping applications
- Built a prototype dashboard for visualization Land Record System using leaflet.
- Conducted Demographic and Feasibility analysis of Real Estate properties.

Education

Paris Lodron University of Salzburg & Palacky University Olomouc

Sep 2022 – July 2024

Dual Masters of Science in Geoinformatics, Earth Observation & Cartography

Austria & Czech Republic

- **Honors:** Awarded ERASMUS Mundus Scholarship for COPERNICUS MASTER IN DIGITAL EARTH
- **Thesis:** Using geotagged photos to design Etosha National Park map set

Pir Mehr Ali Shah Arid Agriculture University

Sep 2015 – Aug 2019

Bachelor of Science in Geo-Informatics

Rawalpindi, Pakistan

Skills

Languages: English (Fluent/C2); German (Novice/A1); Urdu (Native)

Software / Platforms: ArcGIS Pro, QGIS, Google Earth Engine, PostgreSQL/PostGIS, Agisoft Metashape, Ecognition, ArcGIS Online, ESRI Suite, Carto, GitHub, Geoserver, Adobe Illustrator, Microsoft Office

Technical: SQL (Spatial Queries), Leaflet, Maplibre GL JS, Mapbox GL JS, Python (Rasterio, Geopandas, GDAL/OGR, Numpy, Xarray), R (sf, raster, and ggplot), GeeMap, HTML/CSS

Geospatial Relevant: Spatial Analysis, Network Analysis, Web Mapping, Data Modelling, Thematic Cartography, 3D Modelling, Object-Based Image Assessment, Data Processing and Management

Projects

- Developed an interactive web application for Etosha National Park using Leaflet, HTML, and CSS.
- Developed an Air Pollutants web map using Mapbox GL JS that visualizes different pollutants like NO2, SO2, and their exposure to the population in the Indian Gangetic Plain.
- Developed an interactive web application for Tam Giang Lagoon water quality using ArcGIS Experience Builder.
- Performed UAV image processing and modeling to create an orthomosaic image and DEM of a football field.
- Conducted temperature time series analysis using Google Earth Engine.
- Identified suitable sites for tourist hotels in Austria using weighted overlay and cost path analysis.
- Performed geomorphometric analysis of the catchment area around the southern part of Taxenbach, Salzburg.
- Designed thematic maps, including choropleth, graduated symbol, multivariate, and Wurman dots maps.