Muhammad Bilal

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WORK EXPERIENCE

Riscognition   **Munich, Germany**
Research Intern   *May 2023 – August 2023*
- Project: Visualization of near real-time lightning data using Maplibre JavaScript library and overlay with landcover, and forest layers to access the effect lightning on forest fires for SAFERs Project.
- Convert lightning data into PMtiles format using the Tippecanoe command line tool.
- Configured the Mini.io cloud platform for hosting PMtile data (lightning data).
- Visualizing PMtile data using Maplibre JavaScript Library.
- Utilized hotspot functionality to visualize lightning strike intensity at different locations in Europe.

Propsure Digital Solutions   **Islamabad, Pakistan**
Deputy Manager GIS   *January 2020 – October 2022*
- Performed Managerial roles in various projects.
- Managed centralized database and dashboard related to real estate services.
- Developed geodatabases and conducted quality assessments.
- Created static indoor maps of commercial high-rise buildings.
- Designed Spatial Queries for GIS development.
- 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.
- Created 3D Visualization of Properties using Cesium JS Library.

TPL Maps   **Islamabad, Pakistan**
GIS and Remote Sensing Internship   *July 2018 – September 2018*
- Conducted Spatial Analysis using QGIS and PostgreSQL / PostGIS Database.
- Develop Internet Mapping with Geoserver and PostgreSQL.
- Mapped jurisdiction and results of the Pakistan General Elections 2018.

EDUCATION

Copernicus Master in Digital Earth – Geoinformatics and Geovisualisation
Awarded Erasmus Mundus Scholarship   **Austria, Czech Republic**
Paris Lodron University of Salzburg & Palacky University Olomouc   *Graduation Date: July 2024*
Master Thesis: Using geotagged photos to design Etosha National Park map set.

BS (Hons.) Geo-Informatics   **Rawalpindi, Pakistan**
Pir Mehr Ali Shah Arid Agriculture University   *2015- 2019*
Bachelor Thesis: Automated Feature Extraction from Satellite Imagery using Deep Learning.

PROJECTS

Academic Projects
- Develop an interactive web map for Etosha National Park using leaflet and HTML/CSS.
- Develop an interactive web application for Tam Giang Lagoon water quality using ArcGIS Experience Builder.
- Performed UAV Images processing and modelling to create Orthomosaic image and Dem of a football field.
- Performed feature detection analysis using EO Browser-Custom Scripts from Sentinel 2 Imagery.
- Conducted temperature time series analysis using Google Earth Engine.
- Implement Knowledge base model for the Earth Observation Data Cube of Austria to analyse vegetation change.
- Identified suitable sites for tourist hotels in Austria using weighted overlay and cost path analysis.
- Performed Geomorphometrical analysis of catchment area around Taxenbach's southern part of Salzburg.
- Carried out visibility analysis for a hotel in Salzburg using line of sight and viewshed techniques in ArcScene.
- Planned routes for waste collection trucks using network analysis.
- Designed different type of thematic maps including choropleth, Graduated symbol, Multivariate and Wurman Dots maps.

SKILLS

Software / Platforms: ArcGIS Pro, QGIS, Google Earth Engine, PostgreSQL/PostGIS, Agisoft Metashape, Adobe Illustrator, Inkscape, SketchUp, Ecognition, ArcGIS Online, ESRI Suite, Mapbox Studio, Carto, MapTiler, GitHub, Geoserver, Microsoft Office.
Technical: SQL (Spatial Queries), Leaflet, Maplibre GL JS, Mapbox GL JS, Python, R, HTML/CSS.
Geospatial Relevant: Spatial Analysis, Network Analysis, Web Mapping, Data Modelling, Cartographic Design, 3D Modelling, Object-Based Image Assessment, Field data collection and management.

LANGUAGES

English: Fluent | German: Basic | Urdu: Native

SUMMER SCHOOLS & CONFERENCES

- GI-Salzburg23 Conference, International Forum for Geoinformatics (July 2023).
- Blended Intensive Course (BIP) - Participatory tools for urban nature planning and management (Feb 2023 – June 2023).
- International Spring School on Visualization 2023, Palacký University Olomouc, Czech (May 2023).
- Member of Workshop on Mobile GIS Data Collection & Management System (UAAR, 2015).
- Regional Training Workshop on GIS for Agricultural Monitoring (UAAR, 2016).

TRAINING CERTIFICATES

- Introduction to Surface Modeling Using ArcGIS (Esri, 2023).
- GIS Web Maps with HTML, JS, CSS, and off the shelf tools (Udemy, 2019).
- GIS Surveying and Analysis (PITB, 2018).
- Digital Image Processing with OpenCV in Python (Geo University, 2018).

REFERENCES

- **Radek Barvír** - Thesis Supervisor
  Assistant Professor | Palacký University Olomouc | radek.barvir@upol.cz | Academic Reference
- **Jakob Lobensteiner -** Internship Manager
  Chief Technological Officer| Riscognition | jakob.lobensteiner@riscognition.com | Professional Reference