



Salman Haider






GIS Analyst | ArcGIS Pro, Spatial Analysis & Python Automation

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Education

	University of Calgary Master of Geographic Information Systems (MGIS)	Calgary, Canada 08/2024 - 05/2026
	Arid Agriculture University Bachelor of Science - Geoinformatics and Earth Observation	Rawalpindi, Pakistan 09/2016 - 10/2020

Experience

	University of Calgary GIS Research Assistant	Calgary, Canada 01/2026 - 04/2026
	<ul style="list-style-type: none">Analyzed Calgary's public transit access to fresh food sources to assess food security conditions and identify underserved areas.Built a multimodal transit network using General Transit Feed Specification (GTFS) data, street centreline data, walking connections, and ArcGIS Public Transit Data Model workflows.Used ArcGIS Network Analyst to measure 45-minute weekday transit accessibility from residential dissemination areas to grocery stores, supermarkets, and food hubs.Identified 12 dissemination areas with no transit access to fresh food destinations and 32 with limited access, affecting more than 33,000 Calgary residents.	
	BC Ministry of Water, Land and Resource Stewardship Volunteer Student Research Assistant (Socio-Economic and Technical Analysis Division)	Remote, Canada 10/2025 - 11/2025
	<ul style="list-style-type: none">Created thematic maps and GIS visualizations in ArcGIS Pro to compare greenhouse gas emissions across Canadian provinces.Used Python and R to prepare charts, graphs, and visual summaries of environmental variables that were used by economists and policy analysts in internal presentations and meetings.	
	Franchise Ready GIS Analyst	Remote 11/2021 - 08/2024
	<ul style="list-style-type: none">Delivered 105+ franchise territory mapping projects, translating client briefs into GIS datasets, territory maps, reports, ArcGIS Dashboards, and MangoMap web map deliverables.Used ArcGIS Pro, ArcGIS Business Analyst, ABS Census data, demographic enrichment, competitor and POI data, and service-area analysis to build territory layers based on population, income, target demographics, travel distance, and local market conditions.Created balanced franchise territories by combining client requirements with demographic patterns, competitor coverage, existing locations, sales information, POI access, and service-area logic.Acted as the GIS point of contact during client follow ups, explaining mapping options, data limitations, territory criteria, and recommendations, while automating repeatable GIS tasks with Python and ArcPy for geocoding, spatial processing, map production, and quality checks.	
	Greenage Services GIS Associate	Islamabad, Pakistan 04/2021 - 11/2021
	<ul style="list-style-type: none">Created cadastral and land record maps for a government land record digitization project, converting scanned paper maps of state land into structured GIS datasets.Digitized state land parcels, boundaries, and cadastral features in ArcMap, while creating and maintaining geodatabases with close attention to geometry and attribute accuracy.Used FME Workbench to convert AutoCAD plans and drawings into land parcel shapefiles, and supported georeferencing of scanned maps, satellite imagery, and drone imagery using RTK GPS ground control points.Developed Python and OpenCV scripts to organize scanned map records and perform QA/QC checks on geodatabases and shapefiles for incorrect, missing, or misspelled attribute values before final mapping use.	
	MER Solutions GIS Technician	Rawalpindi, Pakistan 10/2020 - 04/2021
	<ul style="list-style-type: none">Worked on the Benazir Income Support Program survey boundary mapping project, georeferencing scanned government maps in ArcMap and preparing GIS layers for field surveys.Created maps showing survey boundaries, roads, landmarks, dwellings, and other key features to support field teams during data collection.Linked household survey records with the correct GIS features and checked demographic, economic, land, and asset information for accuracy.Reviewed field survey data and produced maps to support data validation, household location verification, land ownership assessment, and final reporting for the government social support program.	

Skills

GIS Platforms:

ArcGIS Pro · ArcGIS Online · ArcGIS Enterprise · ArcGIS Field Maps · ArcGIS Dashboards · ArcGIS StoryMaps · ArcGIS Experience Builder · QGIS · Global Mapper · Mango Maps · GeoServer · Leaflet · Mapbox GL JS · Mapbox Studio · MapTiler · Google Earth Engine · ENVI · ERDAS Imagine · Microsoft Office

Programming & Automation:

Python · ArcPy · SQL · JavaScript · HTML/CSS · Flask · GeoPandas · Shapely · GDAL · FME · PostGIS · PostgreSQL · MS SQL · Docker · Tippecanoe

Academic Projects

Geo Copilot: Natural Language GIS Tool for ArcGIS Pro

github.com/salman12haider13/arcgis-geo-copilot-llm

ArcGIS Pro | ArcPy | Python | Large Language Models | Geoprocessing | MGIS Capstone

- Developed a custom ArcGIS Pro script tool (Geo Copilot) that enables users to perform geoprocessing tasks using natural language queries, integrating **Large Language Models (GPT-5 and Llama 3.1)** with ArcPy workflows.
- Designed structured reasoning frameworks to translate user intent into executable spatial workflows.
- Evaluated model performance across 36 geospatial test scenarios, achieving up to **91.7%** function selection accuracy and **83.3%** parameter accuracy with GPT-based workflows, and analyzed failure cases related to projection conflicts and multi-step reasoning.

Ord's Kangaroo Rat Habitat Suitability Model

ArcGIS Pro | Suitability Modelling | Raster Analysis | Aspect Analysis | Habitat Mapping | MGIS Project

- Built an ArcGIS Pro habitat suitability model using **Model Builder** for Ord's Kangaroo Rat using DEM, active sand dunes, ecological range sites, unpaved roads, fireguards, and known species occurrence data from CFB Suffield.
- Prepared the analysis datasets by clipping, projecting, and standardizing **DEM**, road, fireguard, sand dune, and species occurrence layers to a common study area.
- Created the primary habitat model by identifying areas near active sand dunes, extracting dune tops with DEM focal statistics, and selecting south to southwest-facing dune aspects linked to suitable habitat.
- Developed the secondary habitat model using sandy road and fireguard conditions, dune proximity, and road orientation, then combined final rasters using a 70 percent primary habitat and 30 percent secondary habitat weighting.

Namal Lake Desiccation Assessment, 2000 to 2024

Remote Sensing | Google Earth Engine | Python | ArcGIS Pro | ERA5-Land | MNDWI | NDVI | OLS Regression | MGIS Project

- Processed Landsat 7, Landsat 8, and Sentinel-2 imagery in Google Earth Engine to measure Namal Lake surface area change from 2000 to 2024.
- Used **MNDWI** for annual water extraction and NDVI to estimate agricultural expansion around the lake, then built annual median composites and environmental time-series layers.
- Integrated ERA5-Land climate variables including temperature, precipitation, watershed evaporation, and lake surface evaporation, then tested relationships using **standardized OLS regression** in Python.
- Found a statistically significant decline in lake surface area, with agricultural expansion emerging as the strongest negative predictor.

LiDAR and Object-Based Conifer Tree Height Classification

Remote Sensing | ENVI 6.0 | ArcGIS Pro | LiDAR CHM | QuickBird Imagery | Object-Based Image Analysis | SVM | KNN | MGIS Project

- Classified land cover and coniferous tree heights in a Campbell River, British Columbia study area using **ENVI 6.0**, ArcGIS Pro, QuickBird imagery, and a 1 metre LiDAR Canopy Height Model.
- Used NIR, RGB, and NDVI bands for example-based feature extraction, image segmentation, and training sample creation for roads, large trees, small trees, and clear-cut areas.
- Compared **KNN** and **SVM** classification methods and selected SVM because it performed better for identifying smaller clear-cut patches.
- Created nine LiDAR-based tree height classes from 0 to 45 metres, finding that the 25 to 30 metre class covered the largest area at 307,565 square metres.

Courses

FME Desktop: Data Translation for AEC

LinkedIn

Creating a Web Map in ArcGIS Pro

Esri

Learning ArcGIS Python Scripting

LinkedIn

Telling Stories with GIS Maps

Esri

PostgreSQL: Advanced Queries

LinkedIn

Using Python for Automation

LinkedIn

Location-Enabling Data

Esri

Mapping Addresses and Places

Esri

Coordinate Reference Systems, Projections, and Spatial Data Representation

GEO University