

# ANDREW W. ROSS, MSc.

## Senior GIS Analyst

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## SUMMARY

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Highly motivated Senior GIS Analyst with over 9 years of experience developing and maintaining GIS maps, analyses, and geospatial data pipelines. Proven experience utilizing ArcGIS and Python for data validation, processing, acceptance, ingestion, integration, and quality assurance. Passionate about continuously researching and learning new technical processes and systems, and using spatial data analysis to solve real-world problems and improve decision-making.

## SKILLS

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GIS application proficiency:	Expert in FME Desktop, ESRI ArcGIS Pro, and QGIS Advanced skills in large spatial relational database design: Oracle Spatial, Postgres/PostGIS
Python programming:	Geoprocessing with spatial libraries including ArcPy, GeoPandas, Shapely Development of Spatial ETL pipelines Proficient in Jupyter Notebooks Test-Driven Development with Pytest Spatial API development with FastAPI
Cloud platforms:	AWS Certified Cloud Practitioner Certification Azure Fundamentals Certification Docker containerization setup and management Terraform IaC
Technical proficiencies:	PostgreSQL - Spatial analysis, geostatistics, triggers, functions GIT version control - code management, collaboration Linux and shell scripting

## EXPERIENCE

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**Congruex**  
*GIS Engineer*

San Diego, CA  
June 2020 - Current

- Architected and managed containerized cloud API infrastructure using Python FastAPI on Azure to expand functionality of maps for individual projects & departments, consisting of 19 geospatial analysis, reporting, and data management endpoints
- Engineered data analyses in Python with Jupyter Notebooks, GeoPandas, Shapely and other spatial libraries increasing access to corporate spatial data warehouse for project managers
- Trained GIS staff to support management of corporate mapping platform ensuring reliability and stability of spatial database, map servers, GIT, Linux and concomitant systems
- Dramatically improved speed and efficiency of support staff tasks by instituting standardized workflows and deploying tools and automations for data verification and management utilizing Jupyter Notebooks in Python for Geoserver and Postgres
- Established reporting infrastructure to provide geospatial reports and analyses on scheduled basis to support project management and administrative business processes, deployed on Azure with Docker and Python
- Created automated data cleaning and verification spatial ETL pipeline to consolidate geospatial data from partner organizations processing over 13 million features per day using containerized infrastructure on Azure

**Freelance**  
*Data Analyst*

San Diego, CA  
January 2019 - May 2020

- Developed and deployed targeted surveys providing insights into customer engagement and product utilization
- Improved results by closely collaborating with clients to thoroughly understand their needs and requirements
- Increased scale and analysis turnaround by automating end-to-end process to verify, clean, consolidate and analyze data in Python and ArcPy
- Improved depth of analysis by incorporating related spatial data and creating reporting pipeline in ArcGIS Pro

**BC Transit**  
*GIS Analyst*

Victoria, Canada  
January 2013 - October 2018

- Worked closely with planning and administrative staff to develop GIS maps and analyses ensuring their access to relevant up-to-date data to directly support business objectives
- Deployed spatial ETL pipeline, built with Python and Jupyter Notebooks, processing 150,000+ transactions per day from a fleet of 700+ vehicles providing detailed insights into transport ridership patterns
- Developed performance metrics system to monitor security and quality of regional reporting systems improving alerting and notification of farebox security incidents and technical problems
- Created continuous monitoring system with multiple departments ensuring uninterrupted stream of ridership data
- Performed statistical and spatial analysis on ridership data for administrative and planning departments, preparing reports and summaries in ArcGIS, directly supporting decision making for the management and planning of the transit network
- Managed updates and integration of spatial data into the corporate spatial data warehouse with Python, ArcGIS, and ArcPy
- Received the 2015 corporate Recognizing Excellence and Values award for helping to create a cross-departmental team that significantly improved transit vehicle farebox data collection

## EDUCATION

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**Queen's University**  
Master of Science, Computer Science

Kingston, Canada

**University of Ottawa**  
Graduate Diploma, International Development

Ottawa, Canada

**Queen's University**  
Bachelor of Science, Psychology & Computer Science

Kingston, Canada