# ANDREW W. ROSS, MSc.

## Data Engineer

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## SUMMARY

Data Engineer with over 9 years of experience in Python and spatial data processing. Proven ability to design, develop, and deploy efficient data pipelines and web services using cloud technologies. Extensive experience working with GIS applications and geospatial data management. Skilled in containerization and infrastructure management to ensure scalable and reliable solutions.

## SKILLS

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| GIS Applications: | Expert in ESRI ArcGIS Pro & QGIS<br>Systems administration: Postgres/PostGIS, Geoserver<br>Advanced skills in large spatial relational database design |
| Python: | Geoprocessing with ArcPy, GeoPandas, Rasterio, Shapely, Proj<br>Spatial ETL Pipeline development<br>Jupyter notebook server management<br>PyTest: Unit Testing, Test-Driven Development<br>API development with FastAPI |
| Cloud architecture: | AWS Certified Cloud Practitioner Certification<br>Azure Fundamentals Certification<br>Docker containerization setup and management.<br>Terraform IaC. |
| Technical proficiencies: | SQL - Spatial analysis & geostatistics<br>GIT version control - code management, collaboration<br>Linux & bash |
| Communication & collaboration: | Extensive experience communicating technical information to technical and non-technical personnel at various levels in the organization. |

## EXPERIENCE

**Congruex**                                                                San Diego, CA
*GIS Engineer*                                                         June 2020 - Present

- Pioneered and deployed containerized API Docker infrastructure to expand functionality of maps for individual projects and departments, consisting of 19 endpoints written in Python FastAPI on Azure, providing geospatial analysis, reporting, and data management

- Engineered data analysis in Python with Jupyter, GeoPands, and scikit-learn increasing access to corporate spatial data warehouse for telecommunications project managers

- Deployed standardize workflows for the management of PostGIS and GeoServer significantly improving speed and efficiency of support staff

- Launched ETL pipeline consolidating data from multiple sources to produce reports in Python on GoogleDocs improving access to analyses

- 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

- Reduced time to create tools and services by developing Python library to automate the configuration and management of mapping platform comprising over 7000 lines of code

- Created Python-based ETL workflow to consolidate geospatial data from partner organizations processing over 6.5 million features per day with containerized infrastructure on Azure

**Freelance**                                                                    San Diego, CA
*Data Analyst*                                                        January 2019 - May 2020

- Developed and deployed targeted surveys providing insights into customer engagement and product utilization
- Improved results by working closely with clients to deeply 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
- Improved depth of analysis by incorporating related spatial data and creating reporting pipeline in ArcGIS Pro

**BC Transit**                                                                  Victoria, Canada
*GIS Analyst*                                                      January 2013 - October 2018

- Deployed reporting and analysis system, 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

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

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

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