ANDREW W. ROSS, MSc.

GIS Data Engineer

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SUMMARY

Highly motivated GIS Data Engineer with over 9 years of experience designing, developing, and maintaining geospatial data pipelines and integrations. Proven ability to leverage FME Desktop and Python (ArcPy, GeoPandas) to automate ETL processes, manage large spatial databases (Oracle Spatial, PostGIS), and configure Geoserver for web applications. Experienced in cloud platforms (AWS, Azure) and containerization (Docker) for scalable geospatial workflows. Passionate about using spatial data analysis to solve real-world problems and improve decision-making.

SKILLS

GIS applications:	Expert in FME Desktop, ESRI ArcGIS Pro, & QGIS Advanced skills in large spatial relational database design: Oracle Spatial, Postgres/PostGIS Geoserver administration, authorization, layer configuration, and styling
Spatial data analysis:	Extensive experience in creating, verifying & converting between data types: GeoJSON, Geodatabase, Geopackage Comprehensive experience in data collection, cleaning, consolidation & coordination Data Architecture, data modeling, warehousing & analytics
Python programming:	Geoprocessing with spatial libraries including ArcPy, GeoPandas, Shapely, PyProj Development of Spatial ETL pipelines Proficient in Jupyter Notebooks Test-Driven Development with Pytest 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 & bash

EXPERIENCE

Congruex   San Diego, CA
GIS Engineer   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
- 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

- Developed reusable library in Python to automate the configuration and management of mapping platform comprising more than 7000 lines of code
- Created automated data cleaning and verification ETL pipeline to consolidate geospatial data from partner organizations processing over 6.5 million features per day using containerized infrastructure on Azure
- Managed ETL pipeline and API documentation in Confluence along with support requests in Jira

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 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   Victoria, Canada
GIS Analyst   January 2013 - October 2018

- 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

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