ANDREW W. ROSS, MSc.

Geospatial Data Engineer

San Diego, CA · andrew@44digits.com · 858-477-8807
Blog: www.44digits.com · LinkedIn: www.linkedin.com/in/andrewross44

SUMMARY

Highly motivated Geospatial Data Engineer with over 9 years of experience in designing, developing, and deploying data pipelines and APIs for spatial data analysis. Proven ability to leverage Python, SQL/PostGIS, cloud platforms, and containerization to transform raw geospatial data into actionable insights. Experienced in collaborating with cross-functional teams to deliver solutions meeting user needs and enhancing spatial data accessibility.

SKILLS

GIS applications:	Expert in ESRI ArcGIS Pro & QGIS Systems administration: Oracle Spatial, Postgres/PostGIS, Geoserver Advanced skills in large spatial relational database design Installation, testing, and operation of GIS applications
Python programming:	Geoprocessing with ArcPy, GeoPandas, Rasterio, Shapely, Fiona. Development of Spatial ETL pipelines Proficient in Jupyter Notebooks Test-Driven Development with Pytest API development with FastAPI
Cloud computing:	AWS Certified Cloud Practitioner Certification Azure Fundamentals Certification Docker containerization setup and management. Terraform IaC.
Technical proficiencies:	SQL - Spatial analysis & geostatistics 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 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, GeoPandas, and scikit-learn increasing access to corporate spatial data warehouse for project managers
- Provided end-user support and training to technical and non-GIS users of corporate web-mapping platform
- 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
- Established reporting infrastructure and interactive dashboards 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 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 pipeline to consolidate geospatial data from partner organizations processing over 6.5 million features per day using 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 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 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