

## PROFESSIONAL SUMMARY

Senior Data Engineer with 21 years of expertise in geospatial data platforms, big data processing, and distributed systems architecture. Deep specialist in Apache Spark/Sedona for large-scale geospatial analytics, with fluency across ESRI, OSGeo, and SAFE FME technology stacks. Proven track record architecting production systems serving thousands of users, implementing PySpark pipelines processing billions of spatial records, and leading engineering teams. Expert in full-stack geospatial development from PostGIS database optimization to React-based mapping interfaces.

## KEY ACHIEVEMENTS AND IMPACT

### Geospatial Platform Engineering

- Architected redistricting platform processing Census data for thousands of analysts with real-time PostGIS collaborative editing
- Built boundary estimation system using advanced PostGIS algorithms and incomplete data without machine learning requirements
- Developed geospatial simulation platform integrating multi-agent modeling with web interface

## CORE COMPETENCIES

**Big Data & Geospatial Processing:** *Apache Spark* (PySpark, Spark SQL, Scala Spark, Sedona (geospatial), distributed processing); *Geospatial Databases* (PostGIS (advanced), Oracle Spatial, spatial indexing, query optimization); *ETL/ELT* (dbt, Informatica, CDAP, custom PySpark pipelines, data governance frameworks); *Cloud Platforms* (AWS (EC2, RDS, S3), Snowflake, Hadoop clusters, distributed computing); *Streaming* (Real-time data processing, Kafka integration, event-driven architectures)

**GIS Technology Stack:** *ESRI* (ArcGIS Server, ArcGIS Pro, enterprise geodatabases, ModelBuilder, ArcPy scripting); *OSGeo* (QGIS, GRASS GIS, GDAL/OGR, GeoServer, spatial analysis workflows); *SAFE FME* (Data transformation, format conversion, spatial ETL, enterprise integration); *Web Mapping* (OpenLayers, Leaflet, MapBox, tile servers, WMS/WFS services); *Spatial Analysis* (Clustering algorithms, boundary estimation, network analysis, geostatistics)

**Software Development & Architecture:** *Python* (Django/GeoDjango, Flask, Pandas, NumPy, SciKit-Learn, spatial libraries); *JVM* (Scala (Spark), Java (GeoTools, enterprise), Groovy scripting); *Web Technologies* (React, JavaScript, d3.js, RESTful APIs, microservices); *Databases* (PostgreSQL/PostGIS, Oracle, MySQL, MongoDB, spatial optimization); *DevOps* (Docker, Kubernetes, CI/CD (GitLab, GitHub), Airflow, Celery, nginx)

## PROFESSIONAL EXPERIENCE

### Siege Analytics, Washington, DC | PARTNER January 2014 – Present

#### Geospatial Data Platform Architecture and Big Data Engineering

- Architected and engineered production geospatial platforms serving thousands ...
- Built enterprise-scale ETL pipelines using PySpark and Sedona processing bill...
- Developed multi-tenant data warehouse integrating Census, electoral, and demo...

### Helm/Murmuration, Washington, DC | DATA PRODUCTS MANAGER 2012 – 2014

#### Geospatial Systems Architecture and Development

- Architected geospatial analysis frameworks and mapping applications for elect...
- Developed custom visualization tools and interactive dashboards using JavaScr...
- Designed data processing pipelines for large-scale demographic and geographic...

### Mautinoa Technologies, Washington, DC | SOFTWARE ENGINEER 2010 – 2012

#### Data Platform Architecture and Engineering Leadership

- Led technical architecture and development of data-driven political technolog...
- Designed and implemented scalable data platforms using Python, Django, and Po...
- Built RESTful APIs and microservices architecture for campaign data integration

## **Myers Research, Washington, DC | SENIOR ANALYST 2008 – 2010**

### **Campaign Technology and Data Engineering**

- Developed voter targeting models and demographic analysis tools using Python ...
- Built web applications and data visualization systems for campaign analytics
- Created data integration systems connecting multiple campaign data sources

## **Progressive Change Campaign Committee, Washington, DC | RESEARCH DIRECTOR 2006 – 2008**

### **Political Technology and Data Systems**

- Coordinated technical operations and data systems for political campaigns
- Developed data collection and analysis protocols for campaign research
- Built custom applications and tools for voter engagement and campaign management

## **Salsa Labs, Inc., Washington, DC | SOFTWARE ENGINEER 2004 – 2006**

### **Political Technology Development**

- Developed software solutions for political campaigns using PHP, JavaScript, a...
- Built web applications for voter engagement and campaign management
- Integrated third-party APIs and data sources for campaign tools

## **The Praxis Project, Oakland, CA | INTERIM TECHNOLOGY MANAGER 2002 – 2004**

### **Nonprofit Technology Integration and Development**

- Developed data management systems and web applications for social justice org...
- Built custom applications for community engagement using PHP, MySQL, and web ...
- Provided technical training and support to nonprofit staff

## **Lake Research Partners, Washington, DC | PROGRAMMER 2001 – 2002**

### **Political Research and Data Analysis Tools**

- Developed data analysis tools for political polling and research using Python...
- Built statistical models and data visualization tools for research presentations
- Created automated reporting systems and data processing pipelines for survey ...

## **The Feldman Group, Washington, DC | FIELD DIRECTOR 2000 – 2001**

### **Field Operations Technology and Data Management**

- Developed data collection and management systems for political field operations
- Built databases and reporting tools for campaign field work and voter outreach
- Trained field staff on data collection protocols and quality control systems