

## PROFESSIONAL SUMMARY

Senior GIS & Geospatial Analysis Professional with 15+ years of experience in ESRI Arc Suite, SAFE Systems, and OSGeo technology stack. Expert in spatial analysis, demographic mapping, and geospatial data processing with proven track record building enterprise-scale GIS solutions using both proprietary and open source technologies, leading cross-functional teams.

## CORE COMPETENCIES

Software Engineering • Data Engineering • Data Analysis • Geospatial / Demographic Expertise • Research & Analytics • Programming & Development • Data Infrastructure

## PROFESSIONAL EXPERIENCE

### Siege Analytics, Washington, DC | PARTNER 2005 – Present

#### GIS & Geospatial Analysis Consulting

- Lead comprehensive research initiatives for presidential, gubernatorial, congressional, and senatorial campaigns affecting millions of dollars in strategic spending decisions using ESRI Arc Suite and SAFE Systems
- Architect enterprise-scale cloud data warehouse solutions on AWS (EC2, RDS, S3) processing billions of records for electoral analytics and demographic analysis with advanced geospatial processing
- Design and implement scalable ETL pipelines using PySpark, dbt, and PostgreSQL/PostGIS for large-scale geospatial and demographic datasets
- Develop advanced analytical tools and machine learning algorithms using Python, Pandas, NumPy, and Scikit-learn for fraud detection and spatial clustering
- Manage strategic client relationships across political, nonprofit, and technology sectors using Django/GeoDjango web applications with integrated GIS capabilities
- Drive technical architecture decisions for data-intensive applications using Docker, Git, and modern DevOps practices with geospatial components

### Helm/Murmuration, Washington, DC | DATA PRODUCTS MANAGER June 2021 – May 2023

#### Geospatial Data Platform Development and Team Leadership

- Conceived and developed comprehensive data framework using Python, Pandas, and PostgreSQL to clean, validate, and normalize government data from Census, BLS, and NCES with advanced geospatial processing
- Architected and built multi-tenant data warehouse and data lake using Snowflake, dbt, and AWS processing millions of records with millions of columns for longitudinal analysis across attitudinal, behavioral, demographic, economic and geographical dimensions
- Led training initiatives for analytical and engineering staff on open source geospatial technology (QGIS, GRASS, OSGeo) for analysis, segmentation, and visualization using Tableau and PowerBI
- Developed five-year strategic plans for data warehouse architecture using Scala, PySpark, and Apache Spark that became foundation of company's distinguishing products
- Led cross-functional teams of seven to eleven engineers, designers, analysts, and external stakeholders using Agile methodologies and modern DevOps practices

### Mautinoa Technologies, Washington, DC | SOFTWARE ENGINEER August 2016 – February 2018

#### Geospatial Technology and Humanitarian Crisis Solutions

- Architected and developed SimCrisis, a GeoDjango web application using Python, PostgreSQL/PostGIS, and NetLogo for multi-agent modeling and econometric simulations of crisis economies

- Built modular application using Python, Django, and GRASS accepting rules extensions for ethnic strife, different crisis types, supply failures, and disaster scenarios
- Collaborated with senior officers from International Federation of Red Cross, UNICEF, and Chaos Communications Congress to enhance platform using Docker and Ubuntu
- Conceived and developed predictive application using Python, Pandas, and Jupyter to forecast how crisis economies respond to different humanitarian interventions

## **Myers Research, Washington, DC | SENIOR ANALYST August 2012 – February 2014**

### **Geospatial Research and Analysis for Democratic Campaigns**

- Architected and developed RACSO, a comprehensive web application for pollsters to fully administer research including questionnaire creation, versioning, and reporting with integrated geospatial analysis
- Led RFP process and analyzed bids from 1,200 vendors before selecting optimal implementation partner
- Built prototype in R for comprehensive polling administration and sample file management with spatial analysis capabilities
- Provided strategic counsel to Democratic campaigns, political actors, and NGOs through quantitative and qualitative research affecting millions of dollars in campaign spending decisions using ESRI Arc Suite and SAFE Systems

## **Progressive Change Campaign Committee, Washington, DC | RESEARCH DIRECTOR August 2011 – August 2012**

### **Political Technology Development and Geospatial Research Operations**

- Conceived, architected, and engineered FLEEM web application using Twilio API handling tens of thousands of calls using emulated predictive dialer for regulated political surveys
- Developed IVR polling system for early quantitative research supporting Senators Martin Heinrich and Elizabeth Warren
- Built tabular and graphical reporting system with Python, GeoDjango, PostGIS, and Apache webserver
- Designed survey deployment system facilitating thousands of simultaneous phone surveys, saving PAC nearly \$1 million annually in polling costs
- Managed comprehensive research operations for progressive political initiatives and candidates

## **The Praxis Project, Oakland, CA | INTERIM TECHNOLOGY MANAGER April 2009 – October 2009**

### **Nonprofit Technology Integration with GIS Focus**

- Led technology operations for multi-million dollar organization while assisting in search for full-time CTO
- Directed all technology decisions and practices for massive multinational non-governmental organization
- Developed comprehensive frameworks for internal and external technology audits
- Led training initiatives for beneficiaries on spatial and Census data analysis for public health research using ESRI Arc Suite and SAFE Systems
- Conducted training programs for NGO staff in web development using Drupal, PHP, and MySQL with geospatial components
- Managed technology infrastructure supporting community health initiatives across multiple countries
- Architected and developed 25 Drupal sites to integrate with membership databases, activism CRMs and government agencies, under guidelines from Kellogg Foundation and Robert Wood Johnson Foundation

For a more detailed, full description of my experience, please visit my LinkedIn (<https://www.linkedin.com/in/dheerajchand/>) and Personal Site (<https://www.dheerajchand.com>).

## TECHNICAL SKILLS

**GIS SOFTWARE & PLATFORMS** *ESRI Arc Suite* (ArcGIS Desktop, ArcGIS Pro, ArcGIS Online, ArcGIS Server, ArcGIS Enterprise); *SAFE Systems* (Secure geospatial data processing and analysis workflows); *Open Source GIS* (QGIS, GRASS, PostGIS, GeoServer, OSGeo technologies); *Cloud GIS* (ArcGIS Online, AWS geospatial services, Google Earth Engine); *Spatial Databases* (PostgreSQL/PostGIS, Oracle Spatial, SQL Server Spatial)

**GEOSPATIAL ANALYSIS** *Spatial Analysis* (Buffer analysis, overlay operations, spatial statistics, network analysis); *Demographic Mapping* (Census data integration, choropleth mapping, demographic segmentation); *Redistricting* (Boundary analysis, population balancing, compactness measures); *Data Visualization* (Cartographic design, interactive mapping, 3D visualization); *Remote Sensing* (Satellite imagery analysis, land use classification, change detection)

**PROGRAMMING & DEVELOPMENT** *Python* (ArcPy, GeoPandas, Shapely, Fiona, Rasterio, GeoDjango); *JavaScript* (ArcGIS API for JavaScript, Leaflet, OpenLayers, D3.js); *Web Technologies* (ArcGIS Web AppBuilder, custom web mapping applications); *Database Languages* (SQL, PostGIS spatial functions, Oracle Spatial); *Statistical Computing* (R, SPSS, SAS, Stata with spatial analysis extensions)