**Dheeraj Chand**

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## PROFESSIONAL SUMMARY

GIS and geospatial data scientist with 15+ years building systems that matter. Discovered systematic demographic coding errors affecting all Black and Asian-American voters, developed geospatial ML algorithms improving classification accuracy from 23% to 64%. Expert in geospatial analysis, redistricting, and demographic modeling.

## CORE COMPETENCIES

Geospatial Technologies • Programming and Development • Machine Learning & AI

## PROFESSIONAL EXPERIENCE

### Partner - Siege Analytics (Austin, TX) | 2005 - Present

Data Science & Political Analytics

• Discovered systematic race coding errors affecting all Black and Asian-American voters, developed geospatial machine learning algorithms improving demographic classification accuracy from **23%** to **64%**

• Built redistricting platform used by thousands of analysts nationwide with real-time collaborative editing and Census integration

• Utilized advanced sampling methods to decrease survey margin of error from **±4.2%** to **±2.1%**, increasing voter turnout prediction accuracy from **71%** to **87%**, and ensuring survey results more closely reflected true population attitudes

• Trigonometric algorithm for boundary estimation reduced mapping costs by **73.5%**, saving campaigns and organizations **$4.7M** and enabling smaller nonprofits to conduct analysis

• Built real-time FEC analysis systems using Python, Pandas and PySpark to detect likely fraud, money laundering and financial crimes across billions of records daily, performing time series analysis on trillions of records in the political spending sub-economy valued over **$2** trillion

### Senior Analyst - Myers Research (Austin, TX) | 2012 - 2014

Political Research & Analysis

• Designed comprehensive survey instruments for specialized voting segments and niche markets

• Developed sophisticated analytical products and reports that delivered actionable insights to clients

• Co-developed a web application to manage all aspects of survey operations, from instrument design to data collection and analysis

### Research Director - PCCC (Washington, DC) | August 2011 - August 2012

Political Research & Data Analysis (FLEEM System)

• Conceived, architected, and engineered FLEEM web application using Twilio API handling tens of thousands of simultaneous phone 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 comprehensive tabular and graphical reporting system with Python, GeoDjango, PostGIS, and Apache webserver

### Software Engineer - Salsa Labs (Washington, DC) | January 2011 - August 2011

Political Technology & CRM Systems

• Developed geospatial analysis and mapping tools for political CRM platform serving progressive campaigns nationwide

• Built database integration systems connecting voter files with campaign management tools

• Created automated data processing pipelines for voter contact and engagement optimization

### Software Engineer - Mautinoa Technologies (Austin, TX) | 2016 - 2018

Software Development

• Conceived, architected and engineered econometric simulation software for humanitarian crises intervention measurement

• Liaised with data and engineering directors at multinational NGOs (UNICEF, IFRC)

• Geospatial analysis on populations and boundaries for impact assessment

## KEY PROJECTS

### National Redistricting Platform

Cloud-based GeoDjango platform for redistricting analysis with real-time collaborative editing and Census integration, used by thousands of analysts nationwide during 2021 redistricting cycle

Technologies: GeoDjango, PostGIS, AWS, Docker, React, Python, Redis

Impact: Reduced mapping costs by 73.5%, saving organizations $4.7M in operational expenses. Served 12,847 analysts across 89 organizations.

### Geospatial Demographic Classification System

Machine learning platform for demographic analysis that discovered systematic coding errors and improved classification accuracy from 23% to 64%

Technologies: Python, Scikit-learn, PostGIS, GeoPandas, TensorFlow, AWS

Impact: Corrected demographic data affecting all Black and Asian-American voters, improved electoral prediction accuracy by 22%

### High-Performance Geospatial Tile Server

Custom tile server for Web Map Service integration enabling interactive visualization of CRM and Census data

Technologies: GeoTools, OpenLayers, Java, MySQL, TileMill, JavaScript

Impact: Improved contact rates by 53% and segmentation accuracy by 88% through enhanced data visualization

## KEY ACHIEVEMENTS AND IMPACT

### Impact

• Algorithmic innovation: Pioneered trigonometric boundary estimation reducing mapping costs **73.5%**

• **$4.7M** savings enabled nonprofit access

• Breakthrough demographic discovery: Uncovered systematic voter miscoding affecting millions

• **178%** accuracy improvement in racial classification algorithms

## TECHNICAL SKILLS

GEOSPATIAL TECHNOLOGIES Databases; Analysis Tools; Web Mapping; Processing

PROGRAMMING AND DEVELOPMENT Python; R; SQL/PostGIS; JavaScript; Java; Other Technologies

MACHINE LEARNING & AI ML Frameworks; Geospatial ML; Techniques; Validation