**Dheeraj Chand**

## PROFESSIONAL SUMMARY

Senior data scientist and software engineer specializing in geospatial machine learning and large-scale demographic analysis. Developed algorithms that improved demographic classification accuracy from 23% to 64%, processed data across 178,000+ precincts, and built platforms serving thousands of analysts nationwide.

## CORE COMPETENCIES

Data Engineering • Programming

## PROFESSIONAL EXPERIENCE

### Founder & Principal Data Scientist - Siege Analytics (Austin, TX) | 2012 - Present

Data Science & Political Analytics

• Identified decades of systematic demographic miscoding in national voter databases

• Developed geospatial machine learning algorithms that improved automated demographic classification accuracy from 23% to 64% (178% improvement)

• Applied meta-analytical approaches to detect and correct population-scale demographic errors

• Corrected systematic bias affecting millions of voters across all US electoral districts

• Built validation frameworks ensuring demographic accuracy across 178,000+ precincts

### Senior Software Engineer - NGP VAN (Washington, DC) | 2012 - 2015

Political Technology & CRM Systems

• Maintained geospatial analysis tools for Java-based CRM system used by tens of thousands simultaneously

• Developed custom tile server enabling interactive visualization improving contact rates by 53% and segmentation accuracy by 88%

• Built advanced geospatial analysis capabilities using Java, JavaScript, MySQL, and TileMill

• Integrated mapping and visualization tools for political campaign data analysis

### Research Director - PCCC (Washington, DC) | 2010 - 2012

Political Research & Data Analysis (FLEEM System)

• Conceived, architected, and engineered FLEEM web application using Twilio API

• Handled tens of thousands of simultaneous phone calls using emulated predictive dialer

• Built IVR polling system supporting Senators Martin Heinrich and Elizabeth Warren

• Developed survey deployment system facilitating thousands of simultaneous surveys

• Saved PAC $840,000 annually in polling costs through automated infrastructure

## KEY PROJECTS

### National Redistricting Platform (2020 - 2021)

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

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

Impact: Reduced mapping costs by 73.5%, saving organizations $4.7M in operational expenses

### FLEEM Political Polling System (2010 - 2012)

Completely self-built IVR system using Twilio API that contacted tens of thousands of voters daily, replicated call center functionality to performance parity

Technologies: Twilio API, Python, Django, PostgreSQL, JavaScript

Impact: Saved $840K in operational costs plus millions in avoided software licensing

### Geospatial Demographic Classification System (2013 - 2016)

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

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

Impact: Corrected demographic data affecting all Black and Asian-American voters nationwide

### Polling Consortium Dataset Meta-Analysis (2013 - 2016)

Comprehensive meta-analysis of polling data from tens of polling and mail firms with different methodologies and encoding systems

Technologies: Python, R, Statistical Analysis, Meta-Analysis, Data Standardization

Impact: Created $400M dataset that became foundation for modern electoral analytics, estimated current value exceeds $1B

## EDUCATION

### Bachelor of Arts in Plan II Honors - University of Texas at Austin (Austin, TX) | 2008

Honors: Interdisciplinary liberal arts program

## KEY ACHIEVEMENTS AND IMPACT

### Impact

• Discovered systematic race coding errors affecting all Black and Asian-American voters

• Algorithm reduced mapping costs by 73.5%, saving campaigns and organizations $4.7M

• Built redistricting platform used by thousands of analysts nationwide

• Achieved 87% prediction accuracy for voter turnout vs. industry standard of 71%

• Built Civic Graph data warehouse processing billions of records for electoral analytics

• Designed ETL pipelines using PySpark, dbt, and PostgreSQL/PostGIS for geospatial datasets

• Maintained sub-200ms query response across billion-record datasets

## TECHNICAL SKILLS

DATA ENGINEERING Apache Spark, PySpark, Dask; dbt, Airflow; PostgreSQL/PostGIS, Snowflake; AWS (EC2, RDS, S3), Docker

PROGRAMMING Python; SQL; R; JavaScript