dheeraj.chand@gmail.com
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GitHub: github.com/dheerajchand

Dheeraj Chand

[RESEARCH, ANALYSIS, ENGINEERING] → UNDERSTANDING

Austin, TX (30.2672°N, 97.7431°W)

PROFESSIONAL SUMMARY

Data analysis and visualization expert 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 statistical modeling and data storytelling.

KEY ACHIEVEMENTS AND IMPACT

Predictive excellence: Utilized advanced sampling methods to decrease survey margin of error from ±4.2% to ±2.1% • Increased voter turnout prediction accuracy from 71% to 87% • Methodological advancement: Improved segmentation accuracy 34% and survey incidence 28% • Reduced polling costs while increasing quality

CORE COMPETENCIES

Programming and Development • Machine Learning & AI • Geospatial Technologies

PROFESSIONAL EXPERIENCE

Siege Analytics | Partner - 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

Myers Research | Senior Analyst - 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

GSD&M; | Analytics Supervisor - Austin, TX 2018 - 2019

Advertising Analytics

- Restructured the Decision Sciences Department to scale capabilities from small-scale data analysis to comprehensive big data operations
- Implemented spatial analysis and consumer segmentation methodologies that revealed new insights about existing customers
- Advanced Statistical and ML techniques for segmentation and behavioral clustering

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PCCC | Research Director - 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

Helm/Murmuration | Data Products Manager - Austin, TX 2021 - 2023

Democratic Electoral Technology

- Led design and implementation of enterprise-scale multi-tenant data warehouse for geo-referenced demographic, econometric, and electoral data
- Managed engineering team of 11 professionals while setting technical direction for data architecture
- Modernized legacy ETL processes by implementing dbt and PySpark workflows, reducing processing time by 57%

KEY PROJECTS

Geospatial Demographic Classification System

About: 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%

National Redistricting Platform

About: 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.

High-Performance Geospatial Tile Server

About: 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

TECHNICAL SKILLS

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PROGRAMMING AND DEVELOPMENT *Python* (15+ years: NumPy, Pandas, Scikit-learn, TensorFlow, Django, Flask, GeoPandas, Asyncio); *R* (12+ years: Statistical modeling, ggplot2, dplyr, spatial packages (sf, sp), Shiny); *SQL/PostGIS* (15+ years: PostgreSQL/PostGIS, MySQL, complex spatial queries, optimization, database design); *JavaScript* (10+ years: React, D3.js, OpenLayers, Node.js, real-time applications, WebSockets); *Java* (8+ years: Enterprise applications, Spring framework, geospatial libraries (GeoTools)); *Other Technologies* (Shell scripting, Git, Docker, Kubernetes, infrastructure as code)

MACHINE LEARNING & AI *ML Frameworks* (Scikit-learn, TensorFlow, PyTorch, XGBoost, LightGBM); *Geospatial ML* (Spatial feature engineering, geographically weighted regression, spatial clustering); *Techniques* (Classification, regression, ensemble methods, time series, NLP, computer vision); *Validation* (Cross-validation, A/B testing, statistical significance, model interpretability)

GEOSPATIAL TECHNOLOGIES *Databases* (PostGIS, SpatiaLite, MongoDB with geospatial extensions); *Analysis Tools* (GDAL/OGR, QGIS, ArcGIS, spatial indexing, coordinate transformations); *Web Mapping* (OpenLayers, Leaflet, Mapbox GL JS, custom tile servers, WMS/WFS); *Processing* (GeoPandas, Shapely, Fiona, rasterio, spatial ETL pipelines)