

# Nick Kunz

## Senior Data Scientist

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## Skills

Generative AI, Large Language Models (LLMs)  
Machine Learning, Simulation, Optimization  
System Design, Cloud Architecture  
Containers, Deployment, Testing  
Geographic Information Systems (GIS)  
Financial Modeling, Forecasting

## Languages

Scripting: Python, Bash  
Statistical: R, Stata  
Compiled: C/C++, Fortran  
Database: SQL, NoSQL, Cypher  
Typesetting: L<sup>A</sup>T<sub>E</sub>X, Markdown

## Frameworks

Data Science: NumPy, SciPy, Pandas  
Statistical Learning: SKLearn, XGBoost  
Prompt Engineering: LangChain, Bedrock  
Data Visualization: React, Streamlit  
Deep Learning: Pytorch, TensorFlow

## Deployment

DevOps: Git, Docker, CI/CD  
Databases: PostgreSQL, SQLite, Neo4j  
Web Services: Flask, Unicorn, Nginx  
Web Automation: Selenium, Puppeteer  
Cloud Platforms: Azure, AWS, GCP  
Security: OWASP ZAP, STIGs

## Environments

Development: VSCode, Databricks, RStudio  
Geospatial: ArcGIS, QGIS, OSM, Leaflet  
3D Modeling: Rhino, Grasshopper  
Design & Illustration: Adobe Suite  
Financial Modeling: Excel, Macros  
Studio & Live Audio: Logic, Protools

## Prototyping

Project Management: Agile, Scrum  
Sensors & Hardware: Arduino, Rasp. Pi,  
Electrical: Soldering, Wiring, Safety  
Ideation: Drawing, Sketching, Storyboarding  
Analog: Hand Drafting, Physical Modeling

## Awards

Graduate Engineering Fellowship, 2024  
Systems Engineering Fellowship, 2023  
AVID Applause Award, 2022  
Distinguished Alumni Award, 2016  
AmeriCorps Education Award, 2014  
Dingwall Foundation Scholarship, 2012  
Appraisal Institute Scholarship, 2011

# Experience

**Deloitte** — Seattle, WA 2021 - 2024  
Senior Data Scientist

Technical lead on the development and deployment of machine learning services for grant funding of clinical research and public health. Detailed analyses of PubMed Knowledge Graph utilized for marketing managed services in support of awarded contract with NIAID. Development of reranking RAG applications with LLM’s.

**Microsoft** — Redmond, WA 2020 - 2021  
Data Scientist

Developed performance metrics, methodologies, synthetic data, and models into production ready prototypes for the Integrated Visual Augmentation System (IVAS) to improve performance and safety of Infantry units in the US Army through Microsoft’s HoloLens technology and its mixed reality training environment. *Contract: Aquent.*

**Pacific Prospecting Group** — Seattle, WA 2017 - 2019  
Data Scientist

Developed proprietary prediction systems to automate ‘hopping’ between hashing algorithms for maximizing cryptocurrency mining revenue. Assisted with infrastructure development in collaboration with electrical engineers on bitstream development.

**Brawner & Company** — Snoqualmie, WA 2016 - 2017  
Development Analyst

Provided consulting services and financial modeling for tax-credit equity generating real estate investments. Lead detailed analyses utilizing statistical modeling. Automated a reconciliation system for operating cost budgets totaling over \$2.7M annually. Financial forecasts used in capital improvements totaling over \$30M.

**bcWORKSHOP** — Dallas, TX 2013 - 2014  
Fellow

Conducted a novel county-wide geospatial analysis of children’s asthma rates utilizing GIS to identify 2 strategic subject sites for an indoor air quality pilot program. Served as a committee member in a multidisciplinary collaborative to improve the lives of over 60,000 children that suffer from debilitating asthma in Dallas County.

## Education

**Cornell University** — Ithaca, NY 2026  
PhD, Systems Engineering, Artificial Intelligence  
*Thesis: Global Geolocated Realtime Data of Interfleet Urban Transit Bus Idling*

**Columbia University** — New York, NY 2019  
MS, Urban Planning, Urban Analytics  
*Thesis: Unsupervised Learning for Submarket Modeling: A Proxy for Neighborhood Change*

**Arizona State University** — Tempe, AZ 2012  
BS (Hons), Housing & Urban Development  
*Thesis: Realizing Interactive Architecture: A Driver of the Knowledge Economy*

## Software

**SMOGN: Synthetic Minority Over-Sampling Technique for Regression with Gaussian Noise** 2021  
🔗Github [Link] 🐍PyPI [Link] 🏆Kaggle [Link]

A novel pre-processing algorithm designed to address imbalanced data for regression problems. Conducts over-sampling with traditional interpolation, as well as with the introduction of Gaussian noise. Selects between the two over-sampling techniques by the KNN distances underlying a given observation.

**NestedHyperBoost: Nested Cross-Validation for Bayesian Optimized Gradient Boosting** 2020  
🔗Github [Link] 🐍PyPI [Link]

Unifies Nested K-Fold Cross-Validation, Bayesian Hyperparameter Optimization, and Gradient Boosting. Designed for rapid prototyping on small to mid-sized data sets. Quickly obtains high quality prediction results by abstracting away tedious hyperparameter tuning and implementation details in favor of usability and implementation speed.

## Military

**US Army, 75th Ranger Regiment** — Fort Lewis, WA 2015 - 2016  
Infantry

Served in support of US Army Special Operations as a US Army Ranger at 2nd Ranger Battalion. Developed deep interpersonal skills that include: leadership, problem-solving, perseverance, and teamwork. Mission focus dedicated to airfield seizures, direct action raids and ambushes. *Discharge: Honorable.*

**US Army, 1st Special Warfare Training Group** — Fort Bragg, NC 2014  
Special Forces Candidate

Training and indoctrination assignments include: US Army Ranger Assessment and Selection Program, US Special Forces Assessment and Selection, US Special Forces Preparation and Conditioning, US Army Airborne School, and US Army Infantry School.