

# Nick Kunz

## Data Scientist

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## Skills

Machine Learning, Statistics, Analytics  
DevOps, Containers, Deployment, Testing  
System Design, Cloud Architecture  
Simulation, Optimization, Modeling  
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  
Visualization: Matplotlib, Seaborn  
Statistical Learning: SKLearn, XGBoost  
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  
Security: OWASP ZAP, STIGs

## Environments

Development: VS Code, RStudio, Jupyter  
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

Systems Engineering Fellowship, '23  
AVID Applause Award, '22  
Distinguished Alumni Award, '16  
AmeriCorps Education Award, '14  
Dingwall Foundation Scholarship, '12  
Appraisal Institute Scholarship, '11  
Herberger Institute Scholarship, '10  
Study.net Foundation Scholarship, '10

# Experience

**Deloitte** — Seattle, WA 10/21 - Present  
Senior Data Scientist

Technical lead on the development and deployment of machine learning services for grant funding and administration in clinical research and public health. Detailed analyses of PubMed Knowledge Graph utilized for marketing managed services in support of awarded contract for research support and firm services.

**Microsoft** — Redmond, WA 2/20 - 7/21  
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 8/17 - 1/19  
Data Scientist

Developed proprietary prediction systems to automate 'hopping' between hashing algorithms for maximizing cryptocurrency mining revenue. Assisted with GPU on-prem infrastructure development and collaborated with Verilog developers on FPGA bitstream development.

**Brawner & Company** — Snoqualmie, WA 12/16 - 8/17  
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.

## Education

**Cornell University** — Ithaca, NY 8/22 - Present  
PhD, Systems Engineering  
*Dissertation: The World at a Stand Still: Global Geolocated Realtime Data for Transit Bus Fleet Idling*

**Columbia University** — New York, NY 8/17 - 5/19  
MS, Urban Planning, Urban Analytics  
*Thesis: Unsupervised Learning for Submarket Modeling: A Proxy for Neighborhood Change*

**Harvard University** — Cambridge, MA 6/12 - 7/12  
Urban Planning  
*Capstone: Fenway-Kenmore Comprehensive Planning & Finance*

**Arizona State University** — Tempe, AZ 8/09 - 5/12  
BS (Hons.), *summa cum laude*, Housing & Urban Development  
*Thesis: Realizing Interactive Architecture: A Driver of the Knowledge Economy*

## Software

**SMOBN: Synthetic Minority Over-Sampling Technique for Regression with Gaussian Noise** 6/22  
🔗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** 4/20  
🔗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 1/15 - 10/16  
Infantry

Served in support of US Special Operations in the Global War on Terrorism as a US Army Ranger. Developed deep interpersonal skills in 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 4/14 - 1/15  
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.