Nick Kunz

Senior Data Scientist

Address: 602 Rhodes Hall, Ithaca, NY
Mobile: +1 (602) 710-8608
Email: nick.kunz@me.com
Website: nickkunz.com

Skills

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

Languages

Scripting: Python, Bash
Statistical: R, Stata
Compiled: C/C++, Fortran
Database: SQL, NoSQL, Cypher
Typesetting: LaTeX, Markdown

Frameworks

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

Deployment

DevOps: Git, Docker, CI/CD
Databases: PostgreSQL, SQLite, Neo4j
Web Services: Flask, Gunicorn, 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
Analogs: Hand Drafting, Physical Modeling

Awards

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 Retrieval-Augmented Generation LLM applications for AI quality.

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.

Education

Cornell University — Ithaca, NY 2026
PhD, Systems Engineering
Dissertation: 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

Harvard University — Cambridge, MA 2012
Urban Planning
Capstone: Fenway-Kenmore Comprehensive Planning & Finance

Arizona State University — Tempe, AZ 2012
BS (Hons.), *summa cum laude*, 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 2022
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 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 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.

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