Zachary Levonian

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data science | human-computer interaction | natural language processing | ML

Data scientist, research engineer, and expert in applied ML/NLP. 10+ years building AI-powered systems using human-centered design. I combine quantitative and qualitative techniques to **understand**, **improve**, and **create** complex systems.

EXPERIENCE

Senior Machine Learning Engineer, Renaissance Philanthropy, Remote   Oct. 2025 – Present
- Developing education technologies for math education using large language models (LLMs).

Senior Machine Learning Engineer, Digital Harbor Foundation, Remote   May 2023 – Oct. 2025
- Deployed a retrieval-augmented generation (RAG) LLM workflow for 10K+ student learners.

Senior Machine Learning Engineer, ConcertAI, Remote   Nov. 2022 – Apr. 2023
- Deployed production ML models to rank and impute missingness for 20K+ patients using LightGBM, scikit-learn, Spark, and Redshift, reducing screening time from hours to minutes.
- Led an observability overhaul: added data validation, new metrics, and integration tests.

Data Science Intern, CaringBridge, Remote   June 2021 – Aug. 2021
- Designed, deployed, and evaluated a deep learning recommender system for health blogs, resulting in 250+ new supportive comments and positive survey feedback from users.
- Implemented first-in-org ML pipelines for 40M+ user interactions using Pandas and PyTorch.

Applied Scientist Intern, Amazon, Remote   Sept. 2020 – Dec. 2020
- Compared sampling methods using statistical simulations of 1000+ text classification models, resulting in a peer-reviewed conference paper and published design guidelines.

Computer Science Researcher, Univ. of Minnesota, Minneapolis MN   Sept. 2017 – July 2022
- Led research teams of 2-5 people in human-computer interaction research, culminating in 10 peer-reviewed publications with 200+ citations in venues like ICWSM, CSCW, and IUI.
- Developed open-source statistical code in Python and R for multi-modal data analysis.
- Mentored 20+ undergraduate and MS students, winning recognition (CRA and poster awards).
- Methods used: deep learning, statistics, classification/regression, social network analysis, NLP, qualitative content analysis, surveys, semi-structured interviews, and usability studies.

Computer Scientist, MITRE Corp., McLean VA   Jan. 2015 – July 2017
- Full-stack design and development of a prototype aviation safety interface in Java, ultimately deployed to 5+ airports and transitioned to the FAA for full development as a product.
- Led implementation of terabyte-scale automatic speech recognition using Hadoop and Spark.
- Evaluated statistical NLP methods and trained SVM classifiers for intent detection.

Software Developer, General Dynamics, Fairfax VA   Oct. 2014 – Jan. 2015

EDUCATION

Ph.D., Computer Science, University of Minnesota   Sept. 2017 – Sept. 2022
B.A., Computer Science, Carleton College   Sept. 2010 – June 2014

PROGRAMMING SKILLS

Languages: Python, Java, SQL, R, Bash, JavaScript, Awk, Clojure, C, C#
Frameworks & packages: PyTorch, Pandas, scikit-learn, LangChain, Spark, React, AWS (S3, EC2, ECS), Docker, transformers, XGBoost, NLTK, networkx, statsmodels, Terraform, FastAPI, Flask
Tools: VS Code, Jupyter, Vim, Git, LaTeX, SQL (various), MongoDB, Linux, Claude Code, OpenCode