Ethan Nelson

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Machine Learning Engineer

Machine Learning Engineer with experience designing and deploying scalable AI solutions, specializing in end-to-end machine learning optimization and automation. Proficient in Python, SQL, Spark, and deep learning frameworks such as PyTorch and scikit-learn. Skilled in developing and integrating NLP models, and ML pipelines to enhance operational efficiency. Strong background in big data processing, distributed computing, and cloud-based deployments (Azure, Databricks, Docker, Kubernetes, Pandas/Polars, Spark). Passionate about leveraging AI to drive business impact through automation, predictive analytics, and workflow optimization. Proven ability to coordinate efforts across multiple teams and lead team initiatives.

PROGRAMMING AND TOOLS

Proficient with Python, PyTorch, scikit-learn, MLflow, Spark, Docker, Databricks, Azure, Google Suite; Familiar with LaTeX, C++

EXPERIENCE

Software Engineer, Machine Learning at Stukent*,* Remote — Aug 2023 – Mar 2025

- Orchestrated the design and implementation of end-to-end machine learning pipelines and ML life cycle, resulting in 5 model endpoints to be served to over 40,000 users, and estimated **20% reduction in user churn** with risk analysis model.
- Headed architecture of automated workflows for the training, evaluation and deployment of machine learning models in production Databricks environments from the ground up, leveraging **MLflow** and **pyspark**.
- Developed and fine-tuned **NLP** algorithms in **PyTorch**, including **LSTMs** and **transformers**, implementing a real-time alert system for engineering teams on bug-related issues within the platform.
- Integrated large **language model (LLM)** to interpret student performance data dynamically, enhancing learning outcomes through adaptive model responses.
- **Led** team for company research initiative. Originally conducted research and proposed 10 machine learning methods to enhance platform functionality, resulting in building prototypes for 2 projects.

Machine Learning Engineer at AmyAI*,* Remote — Feb 2023 – Aug 2023

- Used generative AI models to improve communication between companies and customers by creating and deploying custom vector search **RAG pipelines** based on web scraped customer data.
- Deployed APIs in Microsoft Azure via **docker** + **Kubernetes**.
- Reached out to 75+ users to research pain points to better understand impact in product development.

Senior Data Analyst at iProspect, *Remote* — Jan 2022 – Aug 2023

- Increased efficiency in runtime over legacy application by ~250% through optimizing ETL pipelines.
- Addressed ad-hoc requests with a strong command of **Python**, **SQL**, and data transformations, revamping dashboards to enhance visibility of key performance indicators (KPIs) and streamline reporting processes.
- Built scripts to transform and join data to help case study dealing with 50% unattributed data points.

MACHINE LEARNING PROJECTS

Key-Value Memory Network Final Project — Oct 2024

- Built a KV memory Network using **PyTorch** which learns to access data stored in a database; very similar to RAG.
- Generated a synthetic data training set and processed data with tokenization and multi-hot encoding.

Fault Detection Capstone Project — Apr 2021

- **PCA** and **Clustering** (DBSCAN, K-means) to identify faults in chemical pipelines. Performed research on different clustering techniques and how different numbers of clusters affected results.
- Findings visualized into web app that included interactive 3D graphs

EDUCATION

Georgia Institute of Technology*,* Atlanta, Georgia — Apr 2025

Master of Science (MS), Computer Science; Interactive Intelligence

Relevant Coursework: Natural Language Processing, Knowledge Based Artificial Intelligence, Machine Learning, Quantum Computing, Human Computer Interaction, Machine Learning for Trading, LLM seminar, Introduction to Research.

Current Research: Zero-Shot Classification in Student Question Optimization

Brigham Young University-Idaho*,* Rexburg, Idaho — Sep 2021

Bachelor of Science (BS), Computer Science

Relevant Coursework: Machine Learning and data Mining, Computer Vision, Databases, Data structures, Discrete Mathematics, Linear Algebra.