Zane Perry

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EDUCATION

University of Colorado Boulder — Boulder, CO

B.S. in Computer Science, B.S. in Applied Mathematics — May 2025

Cumulative GPA: 4.0; Dean's List Fall 2021- Spring 2025

M.S. Applied Mathematics — Expected May 2026

Machine Learning, Data Science/Statistics & Stochastic Processes, Numerical Analysis/Dynamics Modeling; Cumulative GPA: 4.0

Additional Relevant Coursework: Music Technology, Fourier Analysis, Digital Signal Processing, Computational Neuroscience, Orchestra, Time Series Analysis, Quantum Computing, Molecular Biology, Genetics

WORK EXPERIENCE

CU Electrical Engineering Department - Genetic Logic Lab — Boulder, CO

Research Assistant, Software Developer — June 2022 – Present

- Design and test backend frameworks (Spring, Java, JS) and integrate them with React frontends for a genetic data repository
- Rewrite and optimize full stack legacy code for improved user experience and server performance.
- Mentor an undergraduate student through literature review, project planning, coding, and testing
- Research hybrid machine learning models for predicting genetic circuit outputs

Handshake MOVE Fellowship — Remote

AI Trainer - Math Expert, Reviewer (Contract) — May 2025 – Present

- Develop and evaluate domain-specific prompts to assess the performance of large language models in math
- Analyze LLM outputs for mathematical accuracy, clarity, and depth in specialized subfields
- Evaluate other fellows' prompts and responses to address complexity, analyze reasoning, and suggest improvements

Space Environment Technologies — Denver, CO

Radiation Division Computer Science Intern — May 2024 – August 2024

- Automated data pipelines for radiation analysis and built front-end flight risk tools (Python, JS)
- Analyzed atmospheric radiation data to investigate unexplained phenomena
- Designed and built front-end user apps for flight planning and risk analysis

ACTIVITIES

Theta Tau Professional Engineering Fraternity — Boulder, CO

President, Regional Conference Director, New Member Educator, Committee Head — September 2022 – May 2025

- Led a 100 member chapter as President (elected position); managed all communications, organized local/national events, and mentored new members (appointed position).

UNIVERSITY PROJECTS

Senior Capstone - Festo AI Assisted Rapid Prototyper for DevOps - Technical Specialist — April 2025

- Worked with a group of 6 to design a web application, from planning to deployment, that meets specifications laid out by the company sponsor Festo. Interfaced with an LLM API to prompt users for an app design, built the foundational code for that design, and allowed users to visualize and edit the code in a live interface until ready to export. Specialized in the AI prompting and more technical challenges faced in implementation

Advanced Music Recommendation using Deep Learning and Digital Signal Processing — April 2025

- Used Pytorch and Sci-kit, along with advanced digital signal processing techniques (Mel-Frequency Capstone Coefficients, Discrete Wavelet Transforms, Short-Time Fourier Transforms) to survey a collection of user music interests and design, test, and build a multi-modal CNN/RNN deep learning model to learn music preferences based on structural aspects of audio signals

Boundary Integral Equation Ordinary/Partial Differential Equation Solver — April 2024

- Used Python, Numpy, Scipy, and Matplotlib to develop quadrature algorithms that approximate one-dimensional Sturm-Liouville ordinary differential equations and Poisson's equation in two dimensions with a variety of different parameterized homogeneous and nonhomogeneous boundary conditions as well as plotting the errors of the algorithm over a specified domain

Airfoil Fluid Simulation Using Conformal Mapping — April 2023

- Used MATLAB and advanced complex analysis techniques to simulate the flow of fluid around various shapes modeling an airfoil. Presented these concepts in a LaTex written report and tested real world data against the model for accuracy.

Signal Noise Reducer Using Numerical Matrix Factoring — December 2023

- Used Python and the Numpy library to develop a column pivoting matrix factoring algorithm in order to detect numerical rank, sample a signal for noisy characteristics, and extract a cleaned signal

Image Compression Using Discrete Wavelet Transforms — December 2022

- Used MATLAB and advanced linear algebra/signal processing concepts to compress and store images in an efficient manner. Presented these concepts in a LaTex written report in order to compare different techniques based on space and time complexity