

EDUCATION

University of Colorado - Bachelor's of Science, August 2022 - May 2026

- Double Major: Applied Mathematics and Computer Science
- GPA: 3.896
- Dean's List (Fall 2022 - Present)
- Engineering Honors Program Member (Fall 2022 - Present)
- CU General Engineering Scholarship (2022): Awarded to top applicants to the College of Engineering at CU
- Horace M. Hale Esteemed Scholar Award (2022): Awarded to select applicants to CU based on GPA, difficulty of coursework, and academic achievements
Relevant Mathematics Coursework: Real Analysis, Complex Analysis, Matrix Methods, Partial Differential Equations, Differential Equations, Calculus I-III, Markov Processes, Discrete Mathematics, and Applied Probability
Relevant Computer Science Coursework: Theory of Computation, Programming Languages, Computer Systems, Software Development, Intro to AI, Algorithms, and Data Structures
Ongoing Spring 2025 Coursework: Quantum Computing, Nonlinear Control Systems, Operations Research, Advanced Data Science, and Engineering Ethics

RESEARCH EXPERIENCE

University of Colorado, Department of Electrical Engineering

Undergraduate Research Fellow, June 2024 - Present

Advisor: Dr. Emily Jensen

- Selected for the Summer Program for Undergraduate Research at CU; accepted offer to continue as a research assistant based on summer contributions.
- Designed an open-loop control problem for soft-bodied crawling robots, using nonlinear PDEs, dimensional analysis, and perturbation theory to optimize speed and efficiency under realistic friction models.
- Delivered presentations to SPUR directors and research group.
- Skills include Matlab, Python, control theory, nonlinear dynamics, perturbation theory, and partial differential equations

Publications: *Optimal Control of Soft Robotic Crawlers Subject to Nonlinear Friction: A Perturbation Analysis Approach* (Under Review - [preprint](#))

WORK EXPERIENCE

University of Colorado, Office of Information Technology

Assistant System Administrator, June 2022 - Present

Supervisor: Dylan Canfield

- Collaborates with a team of system administrators to manage the University of Colorado's Linux-based server system, tailor hosts to specific client needs, develop software for automation of tasks, and maintain security standards.
- Team utilizes Kanban project management methodology, stand-up meetings, and follows strict quality control and documentation standards.

- Primary technologies used are Python, Ruby, and Bash for software development - Ansible, Chef, Jenkins, and Nagios for configuration management.

SELECTED COURSE PROJECTS

Matrix Methods - Mean-Variance Portfolio Optimization

- Explored theory and implementation Mean-Variance Portfolio Optimization. Experimentally back-tested a contemporary method to reduce overfitting, improving model robustness.
- Paper: [MVP Project](#)

Complex Analysis - Overview of Airfoil Design

- Applied conformal mappings to model airfoil geometry and streamline airflow analysis. Delivered a 25-minute presentation to the class on the theory and applications.
- Paper: [Complex Analysis Project](#)

SERVICE

Walk to Defeat ALS and LiveLikeLou Foundation Fundraising

Volunteer, 2023 - Present. 30 total hours.

- Volunteered to set up, tear down, and provide logistical support for participants at the annual Walk to Defeat ALS in Denver, CO
- Volunteered at multiple fundraising events each semester with Phi Delta Theta Fraternity, which raised over \$10,000 for ALS research during the 2023-2024 school year.

EXTRACURRICULAR EXPERIENCE

COMAP - Mathematical Contest in Modeling (February 2024)

- Internationally recognized undergraduate applied math competition that takes place over 4 days. Worked in a team of three to derive and implement a mathematical model for momentum in sports.
- Paper can be found at: [COMAP Paper](#)

CU Robotics Club (August 2022 - May 2023)

- Worked as software developer on the perception team. Responsible for configuring remote graphical interface to data storage server for image labeling, image labeling system, selection of image recognition model, and training of model

TECHNICAL SKILLS

Mathematics: Differential equations, Real Analysis, Complex Analysis, Linear Algebra, Control Theory, Perturbation Methods, Probability, Stochastic Processes

Programming Languages: Matlab, Python, C++, LaTeX, SQL, Scala, Keysight ADS