Zack Freeman

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Education

University of Utah   *Expected graduation Fall 2026*

Master of Computing: Artificial Intelligence Specialization

University of Utah   *May 2025*

Bachelor of Science: Computer Science   GPA: 3.90

Bachelor of Science: Physics with an emphasis in Astronomy and Astrophysics   GPA: 3.90

- Relevant Courses: Deep Learning – Machine Learning – Algorithms – Foundations of Data Analysis – Intro to Cosmology – Algorithms and Data Structures – Differential Equations and Linear Algebra – Extragalactic Astrophysics – Databases – Quantum Mechanics

Weber State University   *May 2020*

Associates of Science   GPA: 3.92

Projects

Sourcerer

- Developed an app that streamlines the process of finding high-quality sources and summaries for online information.
- Built a scalable data pipeline using Google Cloud Run, integrated Dockerized open-source LLMs with Ollama, and trained custom ML models.
- Designed and maintained a fully automated CI/CD pipeline using GitLab Runners, ensuring rapid, reliable deployment.

Topic Classification Model

- Designed a quantized neural network trained on TF-IDF vectors to classify text into broad categories (e.g., Sports, Politics, etc.) with 85% accuracy.
- Conducted dataset selection and parameter optimization across various models and feature sets to maximize classification performance.

Experience

University of Utah

Research Assistant – Dr. Anil Seth   *May 2022 – Present*

- Searching for black hole microlensing events in a Hubble Space Telescope (HST) dataset of ~160,000 stars spanning 20 years of observations. This work includes algorithm development and optimization, parallelization of code, and image processing.

Undergraduate Student Advisory Committee (UgSAC) – Kahlert School of Computing (KSoC)

- President (*Fall 2022 – Fall 2024*) | Member (*Fall 2021 – Spring 2022*)

      o   Write formal Retention, Promotion, and Tenure (RPT) reports for incoming and current KSoC faculty, in addition to serving as a liaison between students and faculty.

Learning Assistant: Foundations of Astronomy – Dr. Gail Zasowski   *Fall 2022*

- Assisted in development and led ~30-person weekly discussions that involved introductory astrophysics topics, such as orbital mechanics and stellar evolution. Nominee for Learning Assistant of the year.

Physics and Astronomy (PANDA) Mentorship Program

- Committee Member   *Fall 2022*
  - o Designed activities that assisted mentors with teaching their mentees the soft skills needed to navigate the university experience.
  - o Worked with a team of ~10 professors and students.
- Mentor   *Spring 2022*
  - o Assisted incoming Physics and Astronomy students with developing soft skills such as communication with professors, time management, etc.

The Front Climbing Club

- Risk Management Specialist   *May 2021 – May 2022*
  - o Maintained and serviced gym equipment to ensure customer safety. This involved servicing auto-belays, ropes, and all other sport climbing equipment on a regular basis.
- Front Desk Staff   *May 2020 – May 2022*
  - o Managed front desk operations as Front Desk Lead. Tasks included teaching introductory climbing classes and assisting with events.

Civil Engineering Consultants

- Field Inspector | Designer   *May 2017 – April 2020*
  - o Performed design in AutoCAD, responsible for field work, and inspected ongoing projects.

Publications and Presentations

Candidate Microlensing Events in Omega Centauri, Freeman, Z., Häberle, M., Seth, A., et al., in preparation

Max Planck Institute for Astronomy (MPIA) Presentation   June 2024

Undergraduate Research Symposium   August 2023

Utah Conference on Undergraduate Research   February 2023

American Astronomical Society (AAS)   January 2023

Undergraduate Research Symposium   August 2022

Scholarships and Awards

Dean's List Award   10 semesters | $0

Kahlert School of Computing COMPUTE magazine featured student   Fall 2024 | $0

Learning Assistant of the Year Nominee – Department of Physics and Astronomy   Fall 2022 | $0

Outstanding Continuing Undergraduate Award – Department of Physics and Astronomy	Merit | $1,000
Kahlert School of Computing Departmental Scholarship	Merit | $5,000
Goldman Sachs Scholarship	Merit | $5,000
New Century Scholarship	Merit | $4,000
C.M. Collins Endowed Scholarship	Merit | $3,000
Trustee's Scholarship	Merit | $3,000
Guodong Li Scholarship	Merit | $3,000
David S. Anderson Scholarship	Merit | $2,000
Walter W. Wada Endowed Scholarship	Merit | $1,000
College of Engineering Giving Day Scholarship	Merit | $1,000
Early College Achievement (Weber State University)	Merit | $0
High Honors (Weber State University)	Merit | $0
High Academic Excellence (Weber State University)	Merit | $0

Total Amount Awarded: $28,000