

# Zach Crennen

Computer Science + Data Science  
Colorado School of Mines  
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## Links

LinkedIn: [linkedin.com/in/zach-crennen](https://www.linkedin.com/in/zach-crennen)

GitHub: [github.com/zcrennen](https://github.com/zcrennen)

YouTube: [youtube.com/@zachcrennen2342](https://www.youtube.com/@zachcrennen2342)

## Skills

- Machine Learning, Data Science, Statistics, Python, R
- Project Management, Leadership, Independence

## Education

**Colorado School of Mines, Golden, CO**

(Expected Graduation: December 2024)

*Bachelor of Science in Computer Science + Data Science*

Cumulative GPA: 3.8/4.0

Relevant Coursework: Machine Learning, Algorithms, Linear Algebra, Statistics, Game Theory, Operating Systems

Organizations: Tau Beta Pi, Machine Learning Club, Adventure Leadership Community

## Work Experience

**Research Assistant - Montana State University**

(May 2024 - August 2024)

- Participated in the Research Experience for Undergraduates (REU) program in the BMW lab.
- Conducted experiments measuring drone propeller frequency and tilt angle using wingbeat modulation LiDAR.
- Worked under the supervision of Dr. Bradley Whitaker in the Electrical and Computer Engineering department.
- Gained experience with SLURM and High-Performance Computing (HPC) environments.

**Teaching Assistant - Colorado School of Mines**

(March 2024 - December 2024)

- Teaching Assistant for DSCI 570/CSCI 470 - Machine Learning, under Dr. Zibo Wang.
- Held office hours to assist students with homework and course material.
- Graded assignments and quizzes, ensuring consistency and fairness in evaluations.

**Research Assistant - Colorado School of Mines**

(February 2024 - December 2024)

- Undergraduate researcher in the ARIA lab under the supervision of Dr. Kaveh Fathian.
- Led a research project focused on robot cross-view localization using semantic image segmentation techniques.

**Software Engineer Intern - Fulfilld**

(August 2023 - December 2023)

- Developed and implemented a reinforcement learning algorithm for optimal bin packing in a warehouse management startup.
- Led the design and development of the simulation environment.

**Founder - HawkWolf**

(July 2023 - August 2023)

- Founded HawkWolf, an AI-powered platform designed to identify and locate distressed real estate properties for potential investment opportunities.
- Developed a Convolutional Neural Network using TensorFlow to scan and analyze over 20,000 properties.
- Gained hands-on experience with BigQuery, Google Cloud Storage, NumPy, and Pandas for data management and processing.

**Software Engineer Intern - Sigil, Inc**

(February 2022 - August 2023)

- Conducted R&D for an ecommerce brand protection startup, developing web scraping tools with Selenium and BeautifulSoup to gather data from major retail sites like Amazon and Walmart.
- Pitched and explained product capabilities at CES 2023.
- Utilized LangChain for prompt engineering to accurately match items between product catalogs and listings from adversarial gray market sellers, enhancing brand protection efforts.

## Data Cleaning Intern - Coloradohealth.com

(May 2017 - August 2021)

- Cleaned, organized, and updated health insurance data for over 2000 clients per summer.
- Implemented Robotic Process Automation (RPA) technology to streamline and automate data entry process, reducing manual labor and errors.
- Developed a web scraper using UiPath to compile a comprehensive database of over 90,000 doctors across various insurance carriers in Colorado.

## Projects

### AI Chef

(November 2023 - December 2023)

- Developed a website for generating personalized recipes based on user-provided ingredients, cooking appliances, food preferences, dietary restrictions, and budget constraints.
- This was the final project for CSCI 470 - Machine Learning, and it was voted by peers as the best project in the section.

### Clean-Plate

(December 2022 - January 2023)

- Developed a service that sends daily text messages notifying users of school events offering free food.
- Designed and implemented the project's architecture, including web scraping, prompt engineering, AI-powered content generation using the OpenAI API, and SMS integration.

### Clue

(October 2022 - November 2022)

- Coded the board game Clue from scratch using Java as a part of CSCI 306 - Software Engineering.

## Honors

- **Dean's List:** Fall 2021, Spring 2022, Spring 2023, Fall 2023
- **Honor Roll:** Fall 2022

## Conferences

### NNCI 2024 Conference, University of Nebraska, Lincoln, NE

(August 2024)

- Presented both a presentation and a poster on using LiDAR to measure UAV propeller frequency.
- Demonstrated the accuracy of frequency measurements at various angles.

## Extracurriculars

### Outdoors

(August 2021 - Present)

- Climbed 47 peaks above 14,000 ft.
- Learned to ski and skied 75 days, resort and backcountry.
- Biked 1600+ miles.
- Lived in a van during the summer of 2022 and traveled most states in the American west.
- Adventures posted on my YouTube channel.

## References

- **Kaveh Fathian, PhD**  
Assistant Professor, ARIA Lab, Colorado School of Mines  
kaveh.fathian@mines.edu
- **Zibo Wang, PhD**  
Teaching Assistant Professor, Colorado School of Mines  
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- **Bradley Whitaker, PhD**  
Associate Professor, BMW Lab, Montana State University  
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- **Ken Kennedy, PhD**  
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