Alex Morch

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Education

- Bachelors Computer Science at Colorado School of Mines, graduation date May 2026
  - Focus area in Robotics and Intelligent Systems

Technical Experience

- **Teaching assistant**
  - TA for course CS 128, September 2023 to present.
  - In class assistance and office hours, ~5 hrs/week.
- **Hackathons**
  - Participated in the Blasterhacks hackathon, won second place in the healthcare category.
  - Participated in a hackathon run by the W.A.R Lords robotics team, working with a group of four to complete a game in 12 hours.
  - Learned teamwork, collaboration, and scheduling.
- **First Robotics**
  - Participated in various First teams since first grade, including FTC team 10092, the Green.Griffins;
  - Worked with the mechanical team, designing and building a robot to perform a variety of tasks set by the First challenge.
  - Learned skills such as CAD, drill press, and band saw.

Classes Taken (Summer 2025)

- Machine Learning
- Artificial Intelligence
- Software Engineering
- Computer Vision
- Robotics

Personal Projects

- **Python, C++, and C#**
  - Words With Friends Optimization algorithm (Python)
    - A brute force algorithm that gives you the best move in Words With Friends or Scrabble.
  - Pongout (C++)
    - A mix between the classic games Pong and Breakout.
  - 3D Minesweeper (C# - Unity)
    - Minesweeper in 3D with fully customizable settings.
- **Desmos**
  - Terrain Generation Function (3D calculator)
    - Utilizes a randomly generated noise map with cubic interpolation to generate a variety of biomes and features.
  - Raycasting Engine (2D calculator)
    - Follows the design of 1992's Wolfenstein 3D to draw a 3D looking map you can walk around in.
  - 3D renderer (2D calculator)
    - Made with a friend, a 3D renderer with occlusion and lighting.
- **JavaScript/HTML**
  - Journaling reminder app
    - Created a web app using React.
    - Email based journaling system.
    - Worked with 3 others at the Blasterhacks hackathon
- **Scratch**
  - Over 40 shared games made in Scratch, including art, concept testing, and games.

Skills

- Linux, Python, C++, JavaScript/HTML, GDScript
- Collaboration/Teamwork
- Leadership
- Engineering and Design
- Problem solving, Analytical thinking