

# Isabella Harker

Github: <https://github.com/izzyharker>

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## Education

**University of Oregon**, Eugene, OR – *Bachelor of Science; Computer Science & Mathematics\**

**Robert D. Clark Honors College**, Eugene, OR\*

\* = *In progress*

## Work Experience

- **Undergraduate Research Assistant, Guldberg Lab (Knight Campus)** August 2023 - present
  - Collaborated with a team to develop an efficient, user-friendly workflow for processing and analyzing proteomics data.
  - Integrated Python, R, and data-analysis libraries such as Pandas, NumPy, MetaboAnalyst, and limma.
  - Developed efficient workflows for image pre-processing and modeling utilizing diverse software tools.
- **Student Support Tech, USS Academic South** June 2023 - Sept 2023
  - Greeted patrons and facilitated service requests for issues, assisted users with on-site software issues.
  - Provided support for setup, configuration, and troubleshooting across a variety of operating systems and software.
- **Grader, University of Oregon** Fall 2022 - Spring 2023
  - Provided prompt and accurate feedback to students.
  - Communicated effectively and clarified questions.

## Projects

- **Visualizing the Intersection between a Surface and a Plane**
  - Wrote a MATLAB script to calculate and visualize the intersection between a cubic surface and a specific set of planes in 3D space.
  - Communicated and discussed progress regularly with my mentor on the project, promptly incorporated feedback.
- **Scanline Rasterization:**
  - Built a rasterization program in C from scratch to render objects on the CPU.
  - Implemented camera matrix transforms, a scanline algorithm, and a z-buffer to accurately represent objects on-screen.
- **Ray Tracer:**
  - Developed a ray tracer using CUDA to render objects on-screen, including cameras and light sources.
  - Implemented light rays and shadows and a spotlight construction.
  - Defined behavior for several object materials, including matte, metal, and transparent glass.
  - Produced a video showing light shining through a glass pyramid and (sort of) refracting.

## Skills

- **Programming languages:** C/C++, Python, MATLAB, JavaScript, CUDA, HTML/CSS
- **General:** Git, Bitbucket, Pandas, NumPy, tensorflow, Unix
- **Other:** Communication, organization, teamwork, detail-oriented, responsible

## Relevant Coursework:

- **Math:** Linear Algebra, Cryptography, Machine Learning, Data Science, Networks & Combinatorics
- **Computer Science:** Operating Systems, Introduction to Graphics, Programming Languages, Computer Organization