

# Clara McDaniel

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## Education:

**Virginia Polytechnic Institute and State University**, Blacksburg, VA | 08/2021 – 05/2025

BS in Computer Science, Minor in Human-Computer Interaction | GPA 3.7 / 4.00

- Hypatia Virginia Tech Living Learning Engineering Community: Member

## Experience:

**STEAM Summer Scholar** | STEAM Discovery Academy | 07/2022 – 08/2022

- Led 16 students to develop JavaScript scripts to navigate through various mazes.
- Guided groups of students towards the creation of their own custom video game using Bloxels.
- Instructed and facilitated course workshops and activities integrating innovation and art in the classroom.
- Advised students on the basic concepts of coding, engineering, tools and equipment, and entrepreneurship.

**Undergraduate Researcher** | EchoLab @ Virginia Tech | 01/2023 – Present

- Worked with a Professor, Ph. D student, and a Graduate student to research how a socially connected VR system can promote inclusive and immersive learning for children in informal STEM settings.
- Constructed a website that provides a hub for updates, news, and general information about the study and system.
- Assisted in conducting outreach events with elementary schools and science museums to bring the system to local students.

**Immersive Developer** | Virginia Tech ARIES Program | 05/2023 – Present

- Worked with a team of Undergraduate students to develop and refine a virtual Solar System environment, funded by the National Science Foundation, that can be viewed through multiple tablets without the use of a headset.
- Leveraged Unity, C#, Blender, and Photon to fully construct an accessible user interface and virtual space.
- Communicated with multiple educators to present the correct information students need to know about the Solar System.
- Presented the experience at the Science Museum of Western Virginia for a summer camp provided for local children.

## Projects:

**VT Squirrels** | Lead Developer | [GitHub](#) | HTML, CSS, JavaScript

- Designed a website that displays a gallery of photos of squirrels found on Virginia Tech's campus.
- Stylized the site as well as the displayed objects with CSS, including a gradient that spans the page.
- Implemented a hovering mechanic using CSS with hidden messages to cultivate a hidden-object-game experience.
- Leveraged Instagram to accept submissions from Virginia Tech students who are fans of the site.

**Space Colonies** | Lead Developer | [GitHub](#) | Java

- Developed an application that places applicants in space colonies based on population size, required skillsets, and preference.
- Designed a circular queue data structure built to efficiently monitor if the next applicant is to be accepted or rejected.
- Created 3 specialized objects to represent skillsets, planets, and people through array manipulation.
- Implemented sorting algorithms and performed skillset calculations to return the best colony for each applicant.
- Built a full test suite of over 50 tests using JUnit technologies.

**Mesa Processor** | Lead Developer | [GitHub](#) | C

- Constructed an algorithm that finds the biggest mesa, a sequence of at least a given minimum identical values, in a given array.
- Implemented a struct to store the mesa data (i.e. height, weight, indexes), and a dynamic array to store the array of integers.
- Developed an organized output that depicts a table of numbers read and the data of the mesa if it is determined as valid.

**Dijkstra's Shortest Path** | Lead Developer | [GitHub](#) | Java

- Developed an implementation of Dijkstra's Shortest Path for weighted-adjacency graphs.
- Implemented a d-ary min-heap structure that supports insertion, decreasing of keys and extracting minimum values.
- Utilized a binary min-heap to store distance estimates from the given graph source to unexplored vertices.
- Achieves an efficiency of  $O((m+n) \log(n))$  for graphs with  $m$  edges and  $n$  vertices.

## Skills:

Languages: Java | HTML | CSS | JavaScript | Python | C | SQL | C# | C++

Tools and Frameworks: Eclipse | PyCharm | JUnit | VS Code | Wireshark | Linux | GameMaker Studio 2 | Unity | Blender | Photon | Unreal