

## Education

Bachelor of Computer Science, expected May 2024

College of Science and Engineering, University of Minnesota-Twin Cities, Minneapolis, MN

Minor in Interdisciplinary Design

### Notable Coursework

Operating Systems, Machine Architecture, Algorithms and Data Structures, Formal Languages and Automata Theory, Software Design and Development, Functional Programming, Linear Algebra, Discrete Mathematics

## Work Experience

### Undergraduate Teaching Assistant, Introduction to Data Structures and Algorithms (Fall 2022)

- Led labs, contributed to development of projects, graded coursework and exams
- Held office hours to teach students course material and help them navigate the computer science program

### Prep and Line Cook, Northside Grill (Summer 2021)

- Handled myriad responsibilities in a fast-paced kitchen under the direction of the head cook
- Primarily responsible for cooking on the line and prepping ingredients

### Software Development Intern, Advaita Bioinformatics Corporation (Summer 2019)

- Contributed to the development of genetic pathway analysis features for Advaita's iPathwayGuide software using Java, JavaScript, Python, R, and PostgreSQL
- Carried out collaborative software development tasks under AdvaitaBio's lead software developer
- Utilized software development tools and processes such as version control with Git and issue tracking with Jira

## Leadership and Activities

### Officer (Programming Mentor), University of Minnesota Video Game Development Club (Fall 2022, Spring 2023)

- Mentored game development club members in matters of games programming, contributed to multiple group game development projects, participated in game jams

### Undergraduate Research Assistant at University of Minnesota's Interactive Visualization Lab (Spring 2023 - Present)

- Currently contributing to simulation development at the lab as a 3D graphics programmer and interaction designer/developer

## Skills

### Programming Languages

C, C#, C++, Python, Java, GLSL, Swift, Kotlin, OCaml, Javascript, R, PostgreSQL

### Tools and Programs

Unity, Unreal Engine 4, OpenGL, Metal, Vulkan, Blender, RenderDoc, Git, Jira, Unix/Bash, Make, GDB/LLDB, Valgrind/leaks Visual Studio, XCode

## Recent Projects

**Catalogue and Devil Queller (2022)** - Unity 2D/3D and C#, Mathematical animation in 2D, FSM-driven input handling and behaviour, composition and inheritance in class hierarchy design, 2D and 3D action combat, Unity CG shaders, triangulation and spatial partitioning for navigation

**Graphics API Programming (2018-Present)** - C/C++ and Swift, OpenGL, Metal, Vulkan, graphics pipelines, shader programmer, resource loading and binding, ECS architecture, various other core techniques

**Graphics and Algorithms/Data Structures (2016-Present)** - Polygon rasterization renderer, ray tracing renderer, NFA-based regex matcher, BMP image processing library and example implementations of image processing algorithms

**Interactive Visualization Lab Research (2023-Present)** - Unity 3D and C#, Unity CG Shaders and Compute Shaders, design and development of simulations/interactions in a 3D virtual environment, 3D modeling and animation

**Art and Design (2021-Present)** - Sketching in 2D and 3D, contour/structure/value drawing, still-life/figure/architectural drawing, illustration, typesetting, letterpress printing, packaging design and construction, bookbinding