Matthew Jenson

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EDUCATION

University of Minnesota, Twin Cities — Minneapolis, Minnesota
Bachelor of Science in Computer Science – GPA: 3.5 — *Expected May 2025*

Related coursework*: Algorithms and Data Structures, Operating Systems, Machine Architecture, Advanced Programming Principles, Program Design & Development, Intro to Artificial Intelligence, Intro to Algorithms and Program Dev, Discrete Structures, Computer Graphics I, Data Analytics, Computational Linear Algebra*

SKILLS

Programming | C++ ▪ C ▪ Python ▪ C# ▪ Shell/Bash ▪ Java ▪ JS ▪ HTML ▪ CSS ▪ NumPy ▪ GDB
Tech / Workflows | Linux ▪ Git ▪ Agile ▪ Scrum ▪ IntelliJ ▪ CMake ▪ VScode ▪ VS ▪ Eclipse ▪ Pycharm

PROJECTS

Quadtree-Accelerated Physics Simulation | *C++, SFML, Git* | *GitHub Repo*
- Developed a custom implementation of the quadtree data structure to vastly improve computational efficiency with object collision detection in a custom 2d physics simulation
- Designed a program profiler to weed out computational bottlenecks and wrote tests to ensure the robustness of the program as well as its ability to handle any bad input
- Leveraged computer architecture knowledge to optimize the cpu cache allowing for a 10k object simulation at 100 fps

Ray Tracer | *C++, Git* | *GitHub Repo*
- Created a 3D ray-tracing scene renderer entirely from scratch using modern C++ and implemented lifelike lighting, reflectivity, translucency, shading, and more rendering features using proven mathematical models
- Leveraged optimization, computer graphics, and algorithms skills to create an advanced rendering system, capable of drawing complex polygonal models
- Utilized organizational skills and software development best practices while creating a well structured, extendable, and well documented program

2048 AI Solver | Python |
- Created an AI solver which performs very well in the game of 2048, often scoring over 14,000 points per game
- Used principles of state space search and tree traversal with pruning to increase the solver's efficiency and score
- Explored concepts of heuristic development and design during development to find the best decision rules for the AI

Cosmic Fox | *C++, SFML, Git, Visual Studio* | *GitHub Repo*
- Created a top-down, 2D action game using C++ and the SFML graphics API, developed for PC
- Built the game from the ground up using no pre-existing game engine, focusing heavily on lower-level rendering optimizations using C++, taking advantage of developmental streamlining using Git
- Designed aesthetic, retro-style visuals along with an intuitive UI and dynamic movement/combat mechanics
- Devised, explored, and applied organizational strategies and proven software development workflows like agile, while writing, documenting, and structuring the code

EMPLOYMENT & INVOLVEMENT

Lifeworks — *Minnesota*
Personal Care Attendant — *September 2019 – present*
- Cared for disabled clients (primarily down-syndrome) by helping them perform routine activities, grow their communication abilities, aiding in personal hygiene, and helping them learn everyday skills

Target — *Shoreview, MN*
Fulfillment Associate — *July 2020 – May 2021*
- Worked in a team, preparing customer orders for shipping, organized shipments, and managing incoming requests. Functioned directly with customers to resolve problems

Campus Outreach
Event Coordinator / Student Leader — University of Minnesota
- Helped plan and coordinate events and invested in the community