Tomas Stegemann / sunsite.pages.dev / stege084@umn.edu
Bachelor of Computer Science, expected May 2024, GPA 3.7, Minor in Interdisciplinary Design
College of Science and Engineering, University of Minnesota-Twin Cities

Skills
C, C++, C#, Python, OpenGL, GLSL, Unity, Blender, RenderDoc, Git, Make, GDB, Valgrind, concurrent and parallel programming, graphics programming, game development, interdisciplinary design

Work Experience
Game Developer, College of Design (August 2023 - December 2023)
Environment: Unity, C#, OpenGL, C++, GLSL
Developed an educational game for teaching course material about trend forecasting to design students, as well as bespoke tools to create content for the game. Communicated with professors and students in the school of design to shape and refine the project according to their needs. Served primarily as a tools programmer, shader programmer, and programmer/designer for all systems and gameplay.

Undergraduate Research Assistant, Interactive Visualization Lab (November 2022 - June 2023)
Environment: Unity, C#
Developed an interactive voxel/mesh hybrid canoe carving simulation to give indigenous communities a platform for sharing their expertise. Gave interactive demos of the simulation and employed user feedback in improving it. Collaborated closely with other lab members so that my work could be integrated into the lab's overarching projects. Served primarily as a shader programmer and simulation/interaction programmer.

Software Development Intern, Advaita Bioinformatics (June 2019 - September 2019)
Environment: Java, Python, Javascript, R, PostgreSQL
Worked on genetic pathway analysis features for Advaita's iPathwayGuide software. Collaborated with Advaita's core development team under the guidance of their lead developer. Developed proficiency with modern software engineering principles and practices. Served primarily as a backend developer for statistical features operating on iPathwayGuide's databases.

Additional Projects
Graphics and Physics Programming with Hardware APIs
Tools, games, and real-time tech-demos developed in C/C++ with OpenGL and GLSL primarily. Examples include a CCD Inverse Kinematic Hydra demo, a pinball game with a bespoke collision engine, a content development toolset for an educational game, a mass-spring cloth simulation, and a PBD rope simulation. GLM and DearIMGUI are frequently employed in my OpenGL work.

Graphics Programming "From-Scratch"
A rasterizer and a raytracer written in standard C and C++. The rasterizer renders OBJ meshes and skyboxes and the raytracer renders OBJ meshes as well as implicit spheres and planes. Each employs my personal libraries for image I/O, mesh importing, and linear algebra. Accompanying these projects were a handful of implementations of image processing algorithms to test the image I/O library.

Game and Simulation Development
Team and solo projects, primarily in Unity, also in Godot or Unreal 4. Recent highlights: a 3D painting demo employing compute shaders for image processing, two entirely hand-drawn and procedurally animated shoot-em-up games, and an unreleased FPS where I explored navmeshing with R-Tree spatial partitions and Delone triangulation. I've worked on various other gamedev projects for jobs, game jams, club activities, and personal fun.

Leadership
Gopher Graphics Club: Workshop Officer, Video Game Development Club: Programming Officer

Coursework
Computer Graphics, Motion in Games, Linear Algebra, Operating Systems, Machine Architecture, Data Structures and Algorithms, Automata Theory, Discrete Mathematics, Software Design and Development