Alex Wissing

2924 Avenue L, Council Bluffs, Iowa | 402-960-5862 | awissing123@gmail.com | https://alexwissing.com

EDUCATION

Master's in Computer Science *University of Nebraska at Omaha* **Graduation: December 24**

Bachelor's in Computer Science *University of Nebraska at Omaha* **Graduated: December 22**

Bachelor's in Computer Engineering *University of Nebraska Lincoln* **Graduated: December 22**

Minors - *Women & Gender Studies, Mathematics, Robotics*

PROJECTS

GPU-based Raytracer, C++ & GLSL, Vulkan (https://github.com/silvercorked/RaytracerGPU_MastersProject)

- A GPU-accelerated raytracer with a GPU-constructed BVH (LBVH) without Vulkan's raytracing pipeline. Implements the BVH described in Karras' "Maximizing Parallelism in the Construction of BVHs, Octrees, and k-d Trees"

Raytracer, C++, OpenCV (https://github.com/silvercorked/RaytracerInAWeekend)

- Multi-threaded CPU-based raytracer. Handles Diffuse (Lambertian), Metallic, Dielectric, and Constant-mediums materials. Can render textures. Supports spheres, quads, and triangles

Game Engine, C++, Vulkan (https://github.com/silvercorked/Ritis)

- A C++ & GLSL, Vulkan-based game engine in progress (followed tutorial)

Image Processor, C++, OpenCV, Windows (https://github.com/silvercorked/ImageProcessor-CSCI2620)

- Toolset modifying images with layering structure via transformation, rotation, and scaling

Ovalmate, C, C#, LPC5512 SDK, ARM Cortex M3, Windows (https://github.com/silvercorked/OvalMate)

- Firmware for Ovalmate v1.0 for Election Systems & Software, a PCB and Windows software solution for automatically marking ballots for ballot tabulator testing and evaluation. Program communicates over USB and drives motors, IR sensors, and switches

PROFESSIONAL EXPERIENCE

Graduate Assistant, UNO January 2023 - June 2024

- Developing new visualization techniques for machine learning models
- C++-based multi-threaded program for sampling model and generation visualization information
    - **Technologies Used**: C++, Python, JS, D3.js, Cmake

Student Software Engineering Lead, UNO: CMIT Attic December 2018 - December 2022

- Contributed to and launched US - India Partnership 2020 website (team of 2)
    - Developed tools to assist in programming problems using Laravel, Vue, and Bootstrap
    - Developed Mathematical equations for generalizing parabolic curves to populate chart
    - **Technologies Used**: PHP, JS, Laravel, Vue, Bootstrap, D3.js, mySQL
- Lead a team to create a platform for distributing and consolidating intervention studies (team of 5)
    - Backend API using Laravel and data visualization via D3.js, Vue, and Bootstrap
    - Connected backend with AWS S3 to store images from users
    - Created Phone app that served website and kept user state
    - **Technologies Used**: Python, JS, Laravel, Vue, D3.js, AWS, MongoDB, React-Native