Emmett Kapsner

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EDUCATION

University of Minnesota, College of Science and Engineering *Minneapolis, MN*
Bachelor of Science, Computer Science
German Minor May 2024

GPA: 3.6

SKILLS

Technical Skills: Proficient in C, C++, Java, Python and OCaml; Experience with Typescript, GLSL, and C#

Language: Conversational Proficiency in German

PROJECTS

VR Spellcasting Input System November 2023 – December 2023
- Enables user to enter commands by intuitively drawing shapes in 3D space using the Godot engine
- Uses particle systems to provide immediate feedback to user

2D Rigid Body Simulation November 2023 – December 2023
- Created a 2D rigid body simulation system from scratch using Processing, incorporating rotational dynamics and collision detection
- Implemented the Separating Axis Theorem (SAT) to accurately detect collisions between convex shapes, enabling realistic interactions between objects

GLSL Dithering Shader November 2023
- Designed and implemented a custom dithering shader in GLSL to convert images to grayscale using only black and white pixels
- Optimized shader performance to ensure real-time rendering of dithered images in interactive applications

Ray Tracer January 2023 – March 2023
- Developed a ray tracer from scratch in C, implementing advanced rendering techniques without relying on external libraries
- Implemented a variation of the Blinn-Phong reflection model to simulate realistic lighting effects, including specular highlights and diffuse shading

WORK EXPERIENCE

University of Minnesota, Office of Classroom Management *Minneapolis, MN*
Classroom Technology Monitor Lead September 2022 – Present
- Test and service complex technical systems to minimize downtime
- Coordinate tasks with coworkers to ensure timely resolution of mechanical/technical issues
- Organize and maintain departmental inventory to allow for system upgrades and repairs
- Train and explain the essential technical nuances to new team members
- Suggest and implement changes in classroom system layout to improve user experience

University of Minnesota, Department of German, Nordic, Slavic, and Dutch *Minneapolis, MN*
Volunteer German Language Tutor January 2024 – May 2024
- Facilitated conversational practice to enhance students' speaking and listening skills in German
- Assisted students in understanding complex grammar rules, sentence structure, and vocabulary usage
- Provided personalized tutoring sessions to university students seeking assistance in German language acquisition
- Demonstrated strong communication and interpersonal skills in building rapport with students and promoting their confidence in using the German language