SEAN NIKKEL

PROGRAMMER

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SUMMARY OF SKILLS

- Proficient in C++ with knowledge in data structures and algorithms
- Experienced with Vulkan and computer graphics concepts
- Strong academic experience in linear algebra and discrete mathematics

EDUCATION

BS IN COMPUTER SCIENCE EXPECTED GRADUATION: APR 2022
FOCUS: REAL-TIME INTERACTIVE SIMULATION
MINOR: MATHEMATICS

DigiPen Institute of Technology

ACADEMIC PROJECTS

GRAPHICS PROGRAMMER (TEAM OF 2) SEP 2021 – PRESENT
FLUX ENGINE – 3D VULKAN RENDERER

- Collaborated with another programmer to create a Vulkan graphics engine in C++
- Researched and added variance shadow mapping using cubemap rendering
- Implemented volumetric lighting using raymarching to simulate fog
- Utilized Renderdoc for debugging Vulkan calls and shaders on the GPU

LEAD PROGRAMMER (TEAM OF 14) SEP 2020 – APR 2021
REPOSSESSION – 3D STEALTH ACTION

- Collaborated with artists, game designers, and sound designers remotely through online meetings and SVN
- Worked in Unreal Engine 4's shader editor to create various post-process effects
- Debugged the engine's source code to track down and fix bugs

LEAD PROGRAMMER (TEAM OF 13) SEP 2019 – MAY 2020
NOHRA – 2D PRECISION PLATFORMER

- Designed an engine framework in C++ that utilizes ECS to manage game objects
- Implemented 3D lighting in OpenGL to add to the game's laboratory aesthetic
- Managed and assisted a team of 6 programmers with implementing engine features to meet milestone deadlines
- Worked with artists and designers to develop and refine an editor for level creation and parameter modification
- Created an asynchronous asset loading system to allow for a loading screen when the game is launched

PERSONAL PROJECTS

SOLE DEVELOPER DEC 2019 – JAN 2020
OPENGL VOXEL ENGINE

- Utilized OpenGL to render an infinite voxel-based world constructed of polygons
- Implemented vertex-based ambient occlusion created by sampling nearby voxels
- Used seeded random number generators and simplex noise to procedurally generate a mountainous forest scene
- Designed and implemented voxel-based raycasting and collision resolution