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Varun Munagala

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SKILLS

PROGRAMMING

Proficient with:
C++ • OpenGL • Vulkan
Rust • Python • Firebase
Node.JS • JavaScript • Java
Linux • Git

LINKS

Portfolio **varunm100**
Github:// **varunm100**
LinkedIn:// **varun-munagala**

EDUCATION

UW MADISON

2022-2026

TECHNICAL PROJECTS

VULKAN PATH TRACER | Project Link

- Simulates rays of light as they would in real-life to produce global illumination effects.
- Built using the low-level graphics api Vulkan in C++ with the ray tracing extensions.
- Supports physically-based materials.

OPENGL PATH TRACER | Project Link

- Built using OpenGL and Processing.
- Supports basic diffuse and specular materials.

VOXEL ENGINE | Project Link

- Renders voxels (cubes) to create a maze-type structure.
- Implements 3d-perlin noise for randomized mazes.
- Built using OpenGL and C++.

TIME SERIES PREDICTOR | Project Link

- Implements several time-series algorithms for resource prediction.
- Includes LSTM RNN, ARIMA, and polynomial regression.
- Built RNN using Keras in Python.

P2P NETWORK | Project Link

- Implements a peer-to-peer network of nodes and propagates data through TCP sockets.
- Built in Java from scratch.
- Provides small set of utilities for propagating data across nodes and is fully multi-threaded.

SCREEN TIME MONITOR | Project Link

- Records and visualizes screen time activity on a timeline and provides usage statistics.
- Built using Electron and React.

OTHER EXPERIENCE

UMICHIGAN RESEARCH | Research Intern • JUNE 2021 - AUGUST 2021

- Worked with a master's student under Sugih Jamin's graphics group.
- Helped work on a global illumination system in AR.
- Detailed a soft shadows implementation in a medium article (Link).

ZEBI | Intern • JULY 2017 - AUGUST 2018

- Developed ML and Big Data algorithms, primarily worked with Python and Java
- Helped prototype a P2P network that was eventually made into a private Blockchain.