Sanjay Sankaran

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Education

University of Washington Seattle - BS Computer Science (Class of 2025)

Skills

- Languages: C, C++, Python, Typescript/TSX/JSX, Javascript, Java, GLSL (glslc/spv)
- Machine Learning: Pytorch / Tensorflow, LLama models, Autoencoders/VAEs
- Application Development: Native Applications Using GTK and QT
- Web Development: Fullstack, Flask and Django backends, REST APIs, Websockets, React.
- Computer Graphics: Vulkan, GLSL shader programming - Graphics and Compute, Blender 3D.
- Linux: Bash/Python scripting and Automation, Server-side and System configuration.
- Embedded programming / Robotics: C++ for Arduino, ATTiny and ESP boards; Python for Raspberry Pi

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Projects

TraiNNer - Neural Network Designer

- A platform to design, create, train, and visualize neural networks , built on top of PyTorch: Helps new users create, draw, test and train neural nets with no programming required (Screenshots).
- Skills: PyTorch, QT5, Process Visualization, Graph DataStructures.

Hot Potato - 2D Multiplayer Game

- Skills: WebRTC, p2p networks, Redis (Vercel), Javascript, HTML/DOM
- Built a custom react-inspired Javascript UI-Framework from scratch (no dependencies) with Object Oriented Programming, for a seamless user experience (Demo Project)
- Made a decentralized state management system with low latency, by building a peer-to-peer realtime mesh network, using WebRTC.
- Used the Custom UI-Framework and the State Management System to build a fun multiplayer party game.

Vulkanized - 2D Physics Engine

- Skills: Vulkan, C++, Memory Management, Parallelism and Synchronization
- A C++ style wrapper around vulkan, used to make a 2D physics engine using compute shaders and parallelization.
- A Study on Graphics APIs, GPGPU and interaction/simulation models.

Ascii-Render - 3D Graphics Engine

- a 3D raster engine - rendering 3D models with shading and textures in realtime, onto a terminal/shell using ascii-art (screenshots).
- A study on Graphics Processing, Shader Programming and Mathematical Models of 3D Objects.
- Skills: Linear Algebra, Trigonometry, C++, Python, Linux/Bash/Shell

Arrow - Custom Runtime and Interpreter

- An interpreted programming language implemented in java.
- A study into the depths of Interpreters, JIT compilers, and tools like LLVMpipe.
- Skills: Tokenization, Context-Specific-Grammars, Abstract Syntax Treess