Prathik Karanth

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EDUCATION

San Jose State University | MS in Engineering | GPA: 3.6/4.0 | August 2023 – May 2025

Courses: GPU Architecture and Programming, Geometric Modelling, Computer Vision, Reinforcement Learning, Intelligent Autonomous Systems, Advanced Topics in Machine Learning, Linear Algebra

BMS College of Engineering (India) | BE in Computer Science | CGPA: 7.87/10 | August 2018 – July 2022

SKILLS

C, C++, GLSL, OpenGL, CUDA, Vulkan, ThreeJS, Blender, Python, HTML, CSS, Unity, Flutter, Firebase, MySQL, Linux, React, JavaScript

EXPERIENCE

- **Research Assistant – SJSU Computer Engineering Lab (September 2023 – present)**
  - Building a CUDA based preprocessing pipeline for sensory data used in Tactile gloves.
  - Built a fully automated device to document lab experiments to characterize tactile sensory data.
  - Exploratory work on an FPGA board.
- **Officer - ACM SIGGRAPH Computer Graphics Club at SJSU (August 2024 – present)**
  - Working as an event coordinator to help set up computer graphics workshops, talks, and graphic contests.
- **Teaching Assistant – Computer Architecture (Spring: February 2024 – May 2024, Fall: August 2024 – December 2024)**
  - Graded assignments for the course and worked with the course instructor to help with coursework.

PROJECTS

- **Voxelerator – A Marching cube method to convert 3D models to voxel-based models**
  - Built a graphics program to convert 3D models to voxel-based models. Realtime render to display the voxel-based model with parallelized and accelerated data structure optimizations.
  - Software Used: C++, OpenGL.
  - https://github.com/prathikkaranth/voxelerator
- **ExperiRender**
  - A graphics renderer written in Vulkan mainly for visualization purposes required in research fields. Current iteration has support for hardware ray tracing, shadows, screen space ambient occlusion (SSAO), and textures.
  - Software Used: C++, Vulkan.
  - https://github.com/prathikkaranth/ExperiRender
- **Indoor Navigation using Augmented Reality**
  - Built a mobile application to help users navigate indoor environments by overlaying way points on the camera's viewfinder to guide the user to their destination.
  - Software Used: Unity and its ARCore foundation
  - Video Showcase: https://www.youtube.com/shorts/l0D6yMor1Fw
- **Flocking Simulation**
  - Simulation of birds flocking in 3D based on the rules in Craig Reynold's paper 'Flocks, herds and schools: A distributed behavioral model'.
  - Software Used: C++, OpenGL.
  - https://github.com/prathikkaranth/Flocking
- **Mesh Surface Sampling**
  - Worked on sampling points on mesh normals to get UV information to then apply baked textures to shaders that use it.
  - Example WebGL below demonstrates the baked texture of the planet applied to the grass for shadows.
  - Software Used: ThreeJs and Blender.
  - Website Link: https://pkplayground.vercel.app/