Dharshan Vishwanatha

Email: dhvishwa@ucsd.edu · Website: dharshanv.github.io

OBJECTIVE

A self-motivated, skilled and knowledgeable computer science student, who is seeking for an internship opportunity to learn, grow and be in a professional environment.

EDUCATION

University of California, San Diego - *Computer Science* **(2019-2021).** *GPA 3.757.*

Pasadena City College, Pasadena - *Computer Science* **(2017-2019)**. *GPA 3.8.* ***Dean's Honor*** *for all semesters. Awarded* ***Honors in Mathematics****.*

SKILLS

C++: Most proficient and used primarily with my projects.

Java/C#: Self-taught to explore building Android and IOS apps.

HTML/CSS/JavaScript: Self-taught to create my portfolio website and to showcase my projects.

Bash/Git/Makefile/XML: I recently learned and currently improving with frequent usage in my projects.

EXPERIENCE

CalTech: Worked with the CalTech FSAE team on detecting cones and distance from Kinect's camera.

Dr. Jürgen P. Schulze: Professor at UCSD, and currently working with to learn and explore Ray Tracing in VR.

David Kamensky: Assistant Professor at UCSD, and working on exploring and implementing particle--grid fluid simulation and numerical methods within the FEniCS framework.

PROJECTS

Ray Tracer (C++) - A simple Ray Tracer with basic geometry, lighting, reflection, and cubemap.

- Learned basic ray sphere, plane intersection, and using vector operations.

Cloth Simulation (C++) - A simple OpenGL cloth simulation that reacts to gravity and wind forces.

- Learned how Verlet Integration is used in graphics simulation and its importance.
- Implemented common physics objects such as springs and particles.

Octree (C++) - An accelerated spatial data structures, that enables fast lookup of 3d points and triangles.

- Drastically improved ray tracing time complexity between ray and triangle intersection.

SVD-Image-Compression (C++) - An image compression algorithm that I self-learned during my Linear Algebra class.

- Learned how an image is stored and how to manipulate image data.

- Improved my understanding of time complexity and flaws of certain algorithms.

SQL (C++) - Built a SQL like database from scratch that an execute SQL commands and saving or reloading sessions

- Greatly improved my knowledge of data structures and their roles.
- Learned top-down design and breaking down problems.

ELocation (C#): An android app that focuses on giving the user real time information of 100+ public buses across the United States.

- Learned about API requests and parsing the JSON object to represent the bus data. Also using Google's API for displaying maps.
- Learned about creating user friendly and interactive app layout.