DHARSHAN VISHWANATHA

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EDUCATION

University of California, San Diego (Aug 2019 - Dec 2020)

BS, Mathematics / Computer Science

- GPA 3.58 - **Provost Honors** (Fall 2019, Spring 2020). **iLead** program - certified.
- Courses: Advanced Data Structure, Graph Theory, Theory of Computability, Mathematical Reasoning, Numerical Analysis, Statistical Methods, and Abstract Algebra.

Pasadena City College (Aug 2017 - June 2019)

AS, Computer Science

- GPA 3.8 - **Dean's Honor** for all semesters. **Awarded Honors in Mathematics**.

SKILLS

Tools: C++, Java, C#, Linux, Git, Neo4J, OpenGL, OpenCV, openFrameworks, HTML, CSS, JavaScript.
Soft skills: Fast learner, Adaptable, Strong Communication, Self-motivation, Responsible.

EXPERIENCE

CalTech FSAE (Oct 2019 - Dec 2019)

- Worked with the CalTech FSAE team on building an electric autonomous racecar.
- I quickly prototyped detecting cones and distance from Kinect's camera, and displayed depth using OpenCV.
- Due to quick prototyping, we learned that the sun's uv-lights cancels out the Kinect's infrared sensor. Making the use of Kinect useless in competition, and looked towards LiDAR.
- Tools used: OpenCV, Contour's, openFrameworks, and ofxKinect.

PROJECTS

Ray Tracer (C++, Dec 2019)

- A simple Ray Tracer with basic geometry, lighting, reflection, and cubemap. Used in Pixar's RenderMan.
- Learned ray sphere, plane intersection, and using vector operations.

Octree/QuadTree (C++, Sep 2019)

- An accelerated spatial data structure, that enables fast lookup of 3d points and triangles.
- Drastically improved ray tracing time complexity between ray and triangle intersection.

Cloth Simulation (C++, Sep 2019)

- 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.

ELocation (C#, Jul 2019)

- An android app that gives 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.
- Learned about Google's API for displaying maps and custom markers.

All Chat (Java, May 2020)

- A chat messenger app that any user can join. My laptop acts as a server, and users join given my IP.
- Learned about TCP connections, socket programming and creating a user database using SQL and PHP for requests hosted on the cloud.

SVD-Image Compression (C++, Dec 2019)

- Implemented a concept form Numerical Analysis course to image compression.
- Learned about Matrix Decomposition, and getting Eigenvalues through Jacobi Iteration.