Leo Wang

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Skills

Languages ◇ **Advanced**: C#, Python
Intermediate: TypeScript/JavaScript, HTML/CSS, Java, C++
Beginner: HLSL, Matlab

Technologies ◇ **Platforms**: Unity, AWS, TailwindCSS, React, Vite
Libraries: Dear ImGUI, Newtonsoft, Numpy/NumSharp, OpenCV, Selenium, Tensorflow, Matplotlib
Dev. Tools: Visual Studio, Android Studio, Visual Studio Code, Git, Github

Skills ◇ Software Optimization, Large-Scale Data Processing, Data Visualization, Web Development

Education

2024-28 ◇ **University of Maryland, Bachelor of Science in Computer Science**. Data Science Track.
└ *Accepted into the Advanced Cybersecurity Experience for Students (ACES) Honors College.*

2024 ◇ **UMD Presidential Scholarship ($5,000/year)**

2024 ◇ **National Merit Scholarship Finalist ($1,000/year)**

Experiences

2023 ◇ **IEEE Aerospace Conference**. Co-Author, Virtual
├ **"Enhancing Space Communications: A Novel Approach to Solving the Multi-Satellite Scheduling Problem"**
└ *Published accepted paper on work done during the NASA internship to the 2024 Institute of Electrical and Electronics Engineers (IEEE) Aerospace Conference.*

2023 ◇ **IEEE Integrated STEM Education Conference**. Presenter, Johns Hopkins Applied Physics Lab
├ **"Enhancing STEM Education to Communities with Low Access to STEM"**
└ *Presented accepted paper at IEEE Integrated STEM Education Conference. The paper concerned the best practices and methods to raise STEM engagement in under-served communities.*

2021-23 ◇ **National Aeronautics and Space Administration (NASA)**. Intern, Goddard Space Flight Center
├ *Led team of 5 other interns as head developer to create a high fidelity and performant planetary terrain and orbiting satellite simulation capable of outperforming existing solutions in C# using the Unity Engine.*
└ *Designed project philosophy and implemented the majority of systems, such as the AWS EC2 server, simulation structure, planetary bodies, UI, high performance planetary terrain system (see below), and more.*

2020 ◇ **NASA App Development Challenge**. Team Lead and Head Developer, Virtual
├ *Led a team of 10 as the lead developer and project manager that finished in the top 10 nationally, where the challenge centered around a multi-dimensional pathfinding optimization problem across a lunar crater.*
└ *Implemented a Q-Learning-based pathfinding system to leverage the power of machine learning, which could perform higher dimension optimization better than a traditional greedy search.*

Projects

2024 ◇ **N-Body (Barnes-Hut) Simulation**.
└ *Independently created a high performance N-body simulation capable of simulating over 15,000 bodies by leveraging the Barnes-Hut algorithm in C++.*

2023 ◇ **NASA Amazon Web Service (AWS) Client/Server**.
└ *Hosted my NASA project in an AWS EC2 instance to allow for web accessibility via creating a custom server and client WebGL-based website build.*

2022-23 ◇ **NASA Terrain System**.
├ *Personally created a top-of-the-line general terrain simulation as part of my NASA internship to allow for incredibly efficient 3D mesh raycast operations at a resolution higher than many traditional solutions.*
├ *The system was able to dynamically load data from a database of up to **billions of points** in realtime while still being highly compressed via the JPEG2000 format (ex. one system stores **170 million** points in 20 mib).*
└ *Also able to process, render, and simulate up to **13,000,000 points/sec** (including database read times) at arbitrary resolution due to intensive optimizations such as GPU wavefront parallelization and UV/triangle array caching.*