

ShengTse Tsai

shengtsetsai@gmail.com | linkedin: shengtse | github: tsais7

EMPLOYMENT

Junior Software Developer

Aug 2022 – Aug 2023

Bright Pattern, Inc.

San Francisco Bay Area, CA

- Designed and implemented VDI support for contact center software, ensuring compatibility with major operating systems and browsers.
- Optimized desktop app for Apple Silicon by compiling dependencies locally and generating universal binary, enabling a single release for M1 and Intel Macs.
- Rewrote C++ backend build system, implementing dependency checks and error logging.
- Benchmarked video codecs using product, to look for lower bitrate screen recording to minimize server cost.

Undergraduate Computational Researcher

June 2021 – June 2022

Center for Quantitative Life Sciences, Oregon State University

Corvallis, OR

- Contributed to developing a high-performance image segmentation tool based on the Maximally Stable Extremal Regions (MSER) algorithm, leveraging HPC architecture for fast runtimes.
- Conducted comprehensive tests and benchmarks on multiple image segmentation methods, optimizing for precision and recall, reducing false positives outputted. [Paper](#)
- Deployed and maintained a CNN image classification pipeline on HPC clusters that processed over 100TB of raw video data per transect captured by underwater imaging system (ISIIS).
- Led the migration and streamlining of data pipeline across different HPC clusters (Pittsburgh Supercomputing Center).

EDUCATION

Oregon State University

Corvallis, OR

B.S. in Computer Science, Minor in Mathematics

2018 – 2022

PROJECTS

Wave Energy Visualizer | *TypeScript, Angular, Firebase*

- Developed a web-based tool that visualizes Wave Energy Converter (WEC) data in 3D.
- Integrated Google Cloud Firestore backend with extensible database schema.

Hydrodynamics Data Parser | *Rust, PyO3, Python, numpy*

- Implemented a native Python module using Rust bindings for faster run times.
- Parsed frequency-based hydrodynamics data into time-series using fast Fourier transform.

PUBLICATION

- Panaïotis T, Caray-Counil L, Woodward B, Schmid MS, DaPrano D, Tsai ST, Sullivan CM, Cowen RK and Irisson J-O (2022) Content-Aware Segmentation of Objects Spanning a Large Size Range: Application to Plankton Images. *Front. Mar. Sci.* 9:870005. doi: 10.3389/fmars.2022.870005

TECHNICALS

Programming Languages: C++, C, Python, Rust

Tools: Linux, bash, gdb, OpenMP, Jenkins, docker, slurm, OpenCV, numpy, Git

Natural Languages: English and Mandarin (bilingual proficiency)

Legal Status: Singapore Citizen, eligible for H1B1 Visa