

CHRISTOPHER LIU

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EDUCATION

PhD in Computer Science, University of California, Los Angeles

Sept 2021 - TBD

- Advisor: Professor Tony Nowatzki

BS in Computer Science, University of California, Santa Cruz

Sept 2018 - Mar 2021

- UCSC College Scholars Program Student
- GPA: 4.0
- Relevant Coursework: *Advanced Parallel Processing, *Agile Hardware Design (audit), *Compiler Design, *Computer Vision, *Intro to High Performance Computing, Computational Methods and Applications, Distributed Systems, Graph Theory, GPU Programming (* indicates graduate-level coursework)

WORK EXPERIENCE

Summer Researcher, Language, Systems, and Data Laboratory at UCSC | Santa Cruz, CA

Apr 2021 - Present

Advisor: Professor Tyler Sorensen

- Investigating how graph data could be partitioned and the simultaneous execution of graph algorithms across heterogeneous devices (CPUs and GPUs).

Undergraduate Researcher, Computational Genomics Laboratory at UCSC | Santa Cruz, CA

Apr 2019 - Present

Advisors: Professor Benedict Paten and Yohei Rosen MD

- Designed and implemented a novel algorithm that increases the granularity of a pangenomic graph's "parse tree" compared to the existing method (currently integrating into the vgteam/vg library).
- Programmed a CUDA implementation of the single source shortest path algorithm for bidirected graphs.
- Created a Python command line tool that can create test graphs and convert between my custom JSON graph format and CGL's JSON graph format.

Software/Data Intern, Celential.ai | Mountain View, CA

June 2019 - Aug 2019

- Analyzed and enriched free-form candidate data with sklearn in order to improve the accuracy of existing company models.
- Improved the sales team's quality-of-life by presenting their candidates' latest statuses on the company's portal. Used a selenium webscraper which extracted a candidate's status from an intermediate tracking system and translates this information into the company's internal format.
- Architected the foundation for an email bot network that improves email deliverability.

PROJECTS

Panoramic Camera

June 2018 - Sept 2018

A program that syncs and stitches pre-recorded footage from three separate phones together into one panoramic video.

- Designed and 3D-printed a mount that holds three cell phones which record footage with a custom app.
- Wrote a Python program to sync footage from three cameras based on an audio cue.
- Calculated image homographies from the three cameras. Frames from all three cameras were stitched together with a gradient mask.
- Corrected color imbalances due to the different saturations from each camera.

3D Music Rhythm Game

June 2017

A Unity rhythm game written in C# that is played to the beat a song from a local file or through an AUX cable.

- Implemented an algorithm that locates beats based on song intensity. Beats are then displayed by a stream of balls in an interactable game.
- Used the Kinect to allow people to play the game with their hands with three offered playstyles: hand hovering, beat catching, and beat drumming.

TECHNICAL SKILLS

- Programming languages: Python (5 years), C/C++ (3 years), Haskell
- Others: git, Docker, AWS, Unix, zsh