# Lillian Huang

lilhuang@umd.edu

## RESEARCH INTEREST

I want to develop graphics applications that save artists time and effort without forfeiting creative control. Computer vision methods are key components in implementing these tools, as visual understanding is necessary to achieve this goal. Combining this approach with my artistic background helps me design effective, user-focused tools.

## EDUCATION

**University of Maryland, College Park** — August 2018 – Present
(Pursuing) Ph.D. in Computer Science — GPA: 3.968

**University of Michigan, Ann Arbor** — September 2014 – April 2018
B.S. in Physics, Honors — GPA: 3.903
B.S. in Computer Science

## RESEARCH EXPERIENCE

**Graduate Research Assistant** *University of Maryland* — January 2019 – Present
Current: My research focuses on video interpolation for hand-drawn animation, or computer vision-aided "in-betweening." One main difficulty of this project is that the sparse visual nature of our domain gives less information to find correspondences for object tracking. Our other challenge is that there are no standard datasets for this domain, which we overcame by generating synthetic data using Blender and Python.

Previous: I worked on few-shot recognition, or image recognition with only a few training samples. We made improvements by generating salient few-shot samples from the existing samples to better train our model. We presented a poster with our findings at the Women in Machine Learning workshop at *NeurIPS* (see Publications, entry #1).

**Undergraduate Research Assistant** *University of Michigan* — August 2017 – July 2018
Our research in theoretical astrophysics explored what would happen to the abundance of carbon and oxygen in a universe with a different resonance energy level for the triple-alpha process, and if it would be sufficient to support life.

- Simulated effects of altered resonance energy levels using the stellar evolution package MESA
- Submitted these findings for my undergraduate senior thesis
- Published results in a first-author journal paper (see Publications, entry #2)

**Summer Student Researcher** *NSF REU Program at CERN* — June 2017 – August 2017
Created a new, modularized release management system for the centralized file system at CERN.

- Implemented a prototype for this new system using Docker, replacing the virtual machines in the old system
- Created redundancy by putting data in a cloud instead of individual computing nodes

**Open Storage Research Infrastructure (OSiRIS)** *University of Michigan* — May 2016 – August 2016
I did systems engineering for an NSF-funded storage infrastructure project called OSiRIS, which aims to create storage infrastructure that facilitates data sharing and storage between separate institutions.

- Collected, stored, and visualized performance metrics for the system
- Used Ceph, Grafana, and Kibana to improve systems metrics acquisition

**Undergraduate Research Assistant** *University of Michigan* — May 2015 – August 2015
Used machine learning to recover lost neutrino data in experimental particle interactions, as neutrino information is not picked up by our detectors.

- Used regression to deduce missing neutrino data from detected particle scattering information
- Implemented regression in Python using shallow and deep networks
- Published method in a second-author journal paper (see Publications, entry #3)

## TEACHING EXPERIENCE

**Teaching Assistant** *University of Maryland* — August 2018 - December 2018
Undergraduate Discrete Math
Discussion section leader and grader

## LEADERSHIP AND OUTREACH

**Graduate Student Council** *University of Maryland CS Department*  August 2021 – Present
- Organize a student-led grad-to-grad peer mentorship program
- Pair mentors and mentees for year-long partnerships
- Coordinate, prepare, and present workshops on topics relevant to graduate student life

**Club Synchronized Swimming Council** *University of Michigan*  August 2017 – April 2018
- Organized fundraising efforts
- Coordinated volunteering and competitive events for the team

## SKILLS, LANGUAGES, AND TOOLS

**Proficient:** Python, Bash, PyTorch
**Familiar:** C++, C, C#, Git, Blender, Maya

## AWARDS

**National Science Foundation Graduate Research Fellowship (NSF GRFP)**  2020 – Present

National grant awarded to ∼2000 graduate students annually; $37k per year for 3 years

**Gloria Wille Bell and Carlos R. Bell Scholarship**  2014 – 2018

Scholarship awarded to ∼5 undergraduate STEM students per year at University of Michigan; $10k per year for 4 years