

# Shih-Yu (Esther) Lai

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## EDUCATION

**University of Southern California**  
Master of Science in Computer Science

**Los Angeles, USA**  
Sep 2019 - May 2021

**Yuan Ze University (YZU)**  
Bachelor of Science in Computer Science and Engineering; Overall GPA: 3.87/4.0  
Awarded valedictorian honor

**Taoyuan, Taiwan**  
Sep 2015 - Jun 2019

## SKILLS

Experienced in: C, C++, Python, HTML  
Basic (familiarity with): C#, JAVA, MySQL, Pascal, OpenCV  
Other: LaTeX, Microsoft Office, GitHub Desktop, Visual Studio, PyCharm, Google Colab, Jupyter Notebook, Linux

## PROJECTS

### 3D interactive multimedia device, Easy 3D (<http://myeasy3d.weebly.com>)

**Taoyuan, Taiwan**

*Independent study, Inventor*

*Jan 2017 - Jun 2019*

- Created a novel 3D menu for customers by combining 3D hologram, gestures and ultra-low-cost voice recognition; pending Taiwan patent: 107109219, Activity Recognition with Hologram.
- Devised an algorithm in C/C++ with a recognition rate of 90% to recognize gestures using image processing by low-resolution cameras.
- Acquired aid in production from Taiwan government due to selection as one of the 100 I.T Innovative Elite products.
- Published a conference paper: S.Y. Lai and B.H. Chen, "Easy3D: A Holographic Advertising Platform", 2018 IEEE 7th Global Conference on Consumer Electronics (GCCE 2018), Nara, Japan, Oct 2018.

### Emotion recognition based patient recovery system

**Taoyuan, Taiwan**

*Team project, Leader and Software Programmer*

*Jan 2018 - Dec 2018*

- Developed a deep convolutional neural network to recognize the patients' emotions with an accuracy of 90%.
- Collected audio resources through web crawling in Python to keep patients in a good mood.
- Created a website with Django to show up the analyzed emotion data of patients.
- Led team to write a Software Requirements Specification document in Latex and drew UML diagrams.

### Ultra-low-cost Chinese voice recognition system

**Hsinchu, Taiwan**

*Side Project, Inventor*

*Jan 2014 - Jul 2016*

- Implemented a 1.6 USD speaker-independent voice recognition system by simplifying syllables and database.
- Devised a new algorithm in C/C++ to recognize voice efficiently with a recognition rate of 85% and multiple companies seeking technical cooperation.
- Explored knowledge of voice recognition and found methods to overcome challenges after classes to complete ultra-low-cost Chinese voice recognition system.

### Class Projects

**Taoyuan, Taiwan**

*Final Project*

*Sep 2015 - Jun 2019*

- Led team to design an app in Java to notify activities and connect family members to accompany with elderly people and wrote software design documents.
- Implemented a portrait makeup system in OpenCV to beautify image and changed filters.
- Made a Catch the Fruit game and a Card Matching game in C# and got the highest grade in the class.
- Set up a company website and built a roulette game in HTML, CSS and JavaScript.

## EXPERIENCE / EXTRACURRICULAR ACTIVITIES

### Teaching Assistant @ Department of Computer Science and Engineering, YZU

- Mentored at least 50 freshmen and sophomores in Computer Programming, Algorithm, Data Structures.
- Assisted students do assignments and easily explained professional knowledge after classes.

### General Coordinator of 2019 Girls Tech Camp @ Google Taiwan

- Organized three-day courses to teach high school girls Python and inspired students' interest in tech through well-designed activities.

### Scholar of 2019 UCLite Berkeley Program

- Awarded a \$2900 scholarship and invited to UC Berkeley to attend the two-week MBA and CS courses.
- Cooperated and brainstormed ideas with different-background members to complete the capstone project by using strong critical thinking and got runner-up.
- Demonstrated initiative driven leadership and shared takeaways in community and won The Character Award.

### Scholar of 2018 Google's Women Techmakers Scholars Program

- Received the award based on proven academic record and achievements, leadership, and demonstrated passion from over 25,000 applications of Asia Pacific.