

# SHU-CHUAN HSU

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## Education

### M.S. Rice University

*Master of Computer Science*

Aug. 2022 – present

*Texas, United States*

### B.S. National Taiwan University (NTU)

*Department of Mechanical Engineering*

Sep. 2017 – Jan. 2022

*Taipei, Taiwan*

- Cumulative GPA: 4.09/4.30    Last 60 credit GPA: 4.17/4.30    CS related GPA: 4.13/4.30
- Ranking: 7/186 (4%)
- Honors: 2020 Spring Dean's List
- Relevant Courses: Computer Programming, Linear Algebra, Data Structure and Advanced Programming, Algorithm, Computer Architecture, Machine Learning Foundation, Machine Learning Technique, Computer Vision, Introduction to Computer Networks

## Skills

**Programming:** C++, Python, C#, JavaScript, MATLAB, Go, Verilog, Shell Scripting, L<sup>A</sup>T<sub>E</sub>X

**Web Frameworks:** HTML/CSS, React, Node.js, Express, Bootstrap, Flask, MongoDB, MySQL

**Packages/Tools:** OpenCV, PyTorch, Pandas, NumPy, Scikit Learn, GitHub, Git

## Experience

### AIU Lab, CITI, Academia Sinica

*Research Assistant*

Jan 2021 – Jan. 2022

*Taipei, Taiwan*

- Developed an **interactive web application** to allow online inferencing of our model and collect feedback from online users.
- Designed a novel training method utilizing **cycle consistency** and **unsupervised learning** manner to train a **GAN** model aiming to retrieve genetic information from given images. Our proposed model outperformed other SOTA models on the kinship image generating task.

### MediaTek

*Algorithm Intern*

July 2021 – Sep 2021

*Hsinchu, Taiwan*

- Designed a matting algorithm with the **self-supervised** training manner and an **adversarial-trained** discriminator. The model achieved outstanding performance in both qualitative and quantitative tests **in real time**.
- Created an **alpha-matte generating tool** for reducing the cost of marking image ground truth.

### Test Research, Inc. (TRI)

*Software Engineering Intern*

July 2020 – Aug 2020

*Taipei, Taiwan*

- Developed an algorithm to de-noise and construct high-quality 3D structures taken from raw data of lidar detection. The algorithm serves as a pre-processing in detection defects of welding in printed circuit boards.

## Selected Projects

### Personal Portfolio Website | *React, JavaScript, NodeJS, HTML/CSS*

Jun 2022

- Designed a personal web application using **React** and **JavaScript** as the front-end.
- Utilized **rss2json API** to request personal medium posts into **JSON** format.

### Computer Vision Competition | *Python*

Jun 2021

- Incorporated a **non-learning-based** network and a **deep-learning-based** network with warping techniques to interpolate intermediate frames.
- Awarded Second Prize in the final project competition associated with *MediaTek* among 15 teams.

### Web Server | *Go*

Jun 2021

- Constructed a **secure web server** interpreting **HTTP request messages** and handling **concurrent requests**.

### Computer Architecture | *Verilog, RISC-V*

Jun 2021

- Implemented a **single cycle CPU** and re-designed the control of **ALU control** signals to support high-level instructions.

## Publication

- "Kinship Face Synthesis Evaluation Website with Gamified Mechanism", IEEE International Conference on Multimedia and Expo 2022.
- "StyleDNA: A High-Fidelity Age and Gender Aware Kinship Face Synthesizer", IEEE International Conference on Automatic Face and Gesture Recognition 2021.
- "Measurement and Modeling of Frog Jumping ", ARIS & NCAR 2021.