

# SHU-CHUAN HSU

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## Education

### M.S. Rice University

Aug. 2022 – Dec. 2023 (Expected)

*Master of Computer Science*

*Houston, Texas*

- Selected Courses: Graduate Algorithm, Computer System Architecture, Intro to Database System, Web Development

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

Sep. 2017 – Jan. 2022

*Department of Mechanical Engineering, GPA: 3.96/ 4.0, Ranking: 7/186 (4%)*

*Taipei, Taiwan*

- Honors: 2020 Spring Dean's List
- Selected Courses: Data Structure and Advanced Programming, Algorithm, Computer Architecture, Machine Learning, Computer Vision, Introduction to Computer Networks

## Skills

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

**Web Frameworks:** React, Angular, Node.js, JQuery, Express, OAuth, Flask, MongoDB, PostgreSQL, Neo4j

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

## Experience

### AIJU Lab, CITI, Academia Sinica

Jan. 2021 – Jan. 2022

*Research Assistant*

*Taipei, Taiwan*

- Developed an **interactive web application** that enabled users to infer our model online and provided a platform for collecting feedback from over **100 individuals**.
- Integrated training data into the desired space and restructured the generation pipeline to improve the robustness.
- Proposed a novel training method that leveraged **cycle consistency** and **unsupervised learning** to train a GAN model for retrieving genetic information from images.

### MediaTek

Jul. 2021 – Sep. 2021

*Algorithm Intern*

*Hsinchu, Taiwan*

- Developed an **alpha-matte generating tool** that reduced the time required for marking image ground truth by **50%**.
- Enhanced the **quality of matting pictures by 20%** in F2 score through self-designed pipeline.
- Designed a **matting algorithm** with the **self-supervised** training manner and achieved outstanding performance in both qualitative and quantitative tests **in real time**.

### Test Research, Inc. (TRI)

Jul. 2020 – Aug. 2020

*Software Engineer Intern*

*Taipei, Taiwan*

- Designed an algorithm to de-noise and construct high-quality 3D structures from raw lidar detection data.

## Selected Projects

### Rice Book | JavaScript, MongoDB, ExpressJs, ReactJs, NodeJs, OAuth

Sep. 2022

- Constructed a facebook-like **web platform** supporting posts, comments, reactions features by **MERN stack** skills.
- Integrated with the **Google OAuth API** and **Google Cloud Platform (GCP)** to build and merge personal accounts.

### 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.

### Video Frame Interpolation | Python

Jun. 2021

- Implemented a hybrid approach using a **non-learning-based network** and a **deep-learning-based network** and applied 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**.

## Publication

- "KinStyle: A Strong Baseline Photorealistic Kinship Face Synthesis with An Optimized StyleGAN Encoder", Asian Conference on Computer Vision 2022.
- "StyleDNA: A High-Fidelity Age and Gender Aware Kinship Face Synthesizer", IEEE International Conference on Automatic Face and Gesture Recognition 2021.