SHU-CHUAN HSU

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Education

M.S. Rice University   **Aug. 2022 – present**
Master of Computer Science   *Texas, United States*

B.S. National Taiwan University (NTU)   **Sep. 2017 – Jan. 2022**
Department of Mechanical Engineering   *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, LaTeX

Web Frameworks: HTML/CSS, React, Node.Js, Express, Bootstrap, Flask, MongoDB

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

Experience

AIIU Lab, CITI, Academia Sinica   **Jan 2021 – Jan. 2022**
Research Assistant   *Taipei, Taiwan*
- Incorporated several **GAN-based** deep learning methods to manipulate **image segmentation** and preserve high fidelity image.
- Designed a novel training method utilizing **cycle consistency** and **unsupervised learning** manner to train a generative model. Our proposed model outperformed other SOTA models on the kinship image generating task.

MediaTek   **July 2021 – Sep 2021**
Algorithm Intern   *Hsinchu, Taiwan*
- Designed a matting algorithm with **self-supervised** training manner and a **adversarial-trained** discriminator. The model achieved great performance in both qualitative and quantitative tests.
- Utilized a **deep-learning based** matting algorithm to generate a high precision alpha matte **in real time**.
- Created a **alpha-matte generating tool** for reducing the cost of marking image ground truth.

Test Research, Inc. (TRI)   **July 2020 – Aug 2020**
Software Engineering Intern   *Taipei, Taiwan*
- Developed an algorithm to de-noise and generate 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.
- Used **rss2json** module to request perosonal 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 technique to interpolate intermediate frame.
- Awarded Second Prize in the final project competition associated with *MediaTek* among 15 teams.

Computer Architecture | *Verilog, RISC-V*   **Jun 2021**
- Implemented single cycle CPU and re-designed the control of an **ALU control** signal 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.