# Yu-Cheng Hsieh

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## Technical Skills

**Languages**: Python, C/C++, HTML/CSS, JavaScript, Matlab
**Technologies/Frameworks**: Linux, Git, GitHub, Pytorch, LaTeX

## Education

**National Tsing Hua University**                                    Sep. 2018 – June 2022
*Bachelor of Engineering and System Science*                              *Hsinchu, Taiwan*
- **Overall GPA :** 3.89/4.30, ranked 10/90
- **Undergraduate Research :** Utilizing bio-convolution and first order difference on identification and verification of electrocardiogram.

**National Tsing Hua University**                              Sep. 2022 – June 2024 (expected)
*Master of Electrical Engineering*                                        *Hsinchu, Taiwan*
- **Overall GPA :** 4.21/4.30
- **Vision science lab(VSlab)**
- **Current research:** 360 Indoor scene understanding.

## Publication

**PanoMixSwap Panorama Mixing via Structural Swapping for**                  BMVC 2023
**Indoor Scene Understanding**                                     [Paper] [Code] [Website]
*Yu-Cheng Hsieh, Cheng Sun, Suraj Dengale, Min Sun*
- Introduce a novel panoramic data augmentation method that improves performance on panoramic downstream tasks

## Teaching

**Teaching Assistant, Computer Vision (EE6485)**                                Fall 2023
*Dept. of Electrical Engineering, National Tsing Hua University*

## Awards

**Academic Achievement Award**                                     Spring 2020, Fall 2020
- The award for achieving a 5% ranking in the semester.

## Projects

**Introduction to Programming: Room Escape+Shooting Game** | *C/C++*    [Code] [Website] | **Spring 2021**
- Design a game where the character is shot into a house by enemies. Control the character to collect jet pieces (similar to room escape games) to assemble a jet, then use the jet to engage in combat with the enemies (like a shooting game).

**Artificial Intelligence: Course Selector** | *Python*                    [Code] | **Fall 2021**
- Apply the Genetic Algorithm to train a course selector that helps students to choose courses optimally.

**Image Processing: Photoshop-like Application** | *Python/Matlab*              **Fall 2021**
- Leverage Seam Carving algorithm to beautify selfies, make faces and legs much slimmer, and remove a mole.

**Music Information Retrieval: Audio Mosaicing** | *Python*                  **Spring 2022**
- Employ audio mosaicing to blend casually hummed vocals with popular songs, creating the illusion of singing those popular tunes.

**Robotic Navigation and Exploration: Control JetBot** | *Python*           **Spring 2022**
- Train a ResNet-based model that enables the JetBot to navigate designated tracks while evading obstacles.

**Computer Vision: Real-time Fighting Game** | *Python*            [Code] | **Fall 2022**
- Develop a two-player fighting game using real-time human pose estimation for avatar control through poses.
- Utilize GAN-based face morphing for avatars to shift between different looks smoothly.

## Extracurricular

**NTHU TAA Winter Camp**                                                   Jan. 2019
- Bring joy and love to students in rural elementary school.

**NTHU ESS Camp**                                                          Jul. 2019
- Teach high school students to implement some basic electric circuits and visit Industrial Technology Research Institution.