

Mu-Ruei Tseng

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Summary

An accomplished Master of Computer Science student at Texas A&M University, proficient in diverse software development domains, including Machine Learning, Computer Vision research, full-stack .NET and Vue.js development, and robotic programming.

Education

Texas A&M University

Master of Computer Science

College Station, Texas

Aug. 2023 - Exp. Jun. 2025

Hong Kong University of Science and Technology

Hong Kong

Bachelor of Science in Computer Science and Mathematics

Sep. 2017 - Aug. 2021

Minor in Robotics. Graduated with First Class Honors and GPA 3.66/4.3.

Professional Experience

Neurobit Technologies

Taipei City, Taiwan

Computer Vision *Software Engineer*

Jun. 2022 - Jul. 2023

- Develop a application dedicated to oculomotor tests, built using WPF with MVVM structure.
- Design a labelling tool using ASP.NET Core Blazor for efficient data organization and curation.
- Conduct comprehensive eye gaze model research to identify potential Nystagmus symptoms.

CSE department, Hong Kong University of Science and Technology

Hong Kong

Research Assistant, advised by Prof. Chi-Keung Tang

Jul. 2021 - Dec. 2021

- Research Human Action Recognition models for accurate performance with limited training data, and develop a novel 3D+T Human Action Dataset for advanced human pose estimation (HAA4D).

Alliance Technology Global Limited

Hong Kong

Frontend Developer Intern

Nov. 2021- Dec. 2021

- Create an admin portal for Aero Link utilizing Vue.js, and design modular components for reusability across multiple projects.

Lilee Systems

New Taipei City, Taiwan

Software Engineer Intern

Dec. 2019 - Jan. 2020

- Real-time monitoring of bus drivers' behavior via feature extraction using state-of-the-art algorithms.
- Developed GUI using Tkinter for dataset management and accelerated labeling processes.

Projects

Computer Vision & Machine learning

- HAA4D: Few-Shot Human Atomic Action Recognition via 3D Spatio-Temporal Skeletal

Alignment

- Proposed a skeleton-based action recognition model that make use of few-shot learning and the explicit geometric property of human skeleton in the globally aligned space.

- GuitarTabPro

- Extract tabs in YouTube guitar tutorial videos and combine them into a complete sheet. Build the website using Vue.js as frontend and Flask as backend.

- Real-Time Object Detection with Depth Estimation on Mobile Devices

- Designed a real-time, mobile-optimized multitasking model. Deployed on an iPhone 8 with 17.7 MB size and achieving a frame rate of 6.41 FPS.

- Augmented Reality Technology for Visually Impaired

- Incorporated Explainable AI into conventional image classification tasks to enhance the persuasiveness of model predictions for visually-impaired individuals.

- **AI meets Big Data**

- Utilized Raspberry Pi to collect raw indoor Wi-Fi and magnetic signals and employed unsupervised learning techniques to analyze the data and achieve accurate indoor positioning.

Image Processing

- **Emotion Transformation Net**

- Altering facial expressions according to distinct emotional parameters, while ensuring identity preservation, accomplished via the integration of top-10 Eigenfaces for each emotion.

Embedded System

- **STM32 Live Stream Car**

- Built a three-wheels remote control car using STM32 cpu that can return live streams of the current room with a frame rate of 1~2 FPS.

Extracurricular Activities

Google Crowdsourcing Virtual Camp, Google Taiwan Community

Participant

Jul. 2021

- Identified deficiencies in the existing Google Crowdsourcing app. Developed an enhanced crowdsourcing interface to improve user experience and increase participation in labeling tasks.

Robotics Team, HKUST

Intelligent Car Racing Team Member

Feb. 2018 - Aug. 2019

- Developed efficient C++ algorithms for autonomous model cars, incorporating camera, electromagnetic, and ultrasonic sensors. Devised the vehicle encounter algorithm to ensure the avoidance of collisions between two automobiles on the track.
- Developed a graphical user interface (GUI) utilizing the Unity framework to oversee test rides, fine-tune Proportional-Integral-Derivative (PID) parameters, and facilitate manual controls for the creative competition robot.
- Being a tutor and providing guidance on image processing techniques to newcomers for competition preparation.

Band Society, HKUST

Promotion Secretary

Feb. 2018 - Feb. 2019

- Created promotional materials (posters, t-shirts, logos, leaflets) and coordinated events (band shows, busking) to effectively market and showcase the band's music.

Achievements

- High Flyers Program Scholarship 2021
- Dean's List, HKUST 2018, 2020, 2021
- Talent Development Scholarship 2019
- Entered the National Round of the 14th NXP Cup Intelligent Car Racing Competition ("Creative" category, China) Aug. 2019
- The Third Prize of the 13th NXP Cup Intelligent Car Racing Competition ("Dual Car" category, South China Region) Jul. 2018

Technical Skills

- Python (Pytorch, Tensorflow, OpenCV, Tkinter, Flask), C# (Emgu CV, Emgu TF), C++, HTML, JavaScript/TypeScript, CSS, SQL, Swift, Java
- .Net, Vue.js, React, Git, LaTeX, Unity