Yu-Hua (Evan) Hu

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Education

National Taipei University of Technology | Taiwan *Sept. 2020 - June 2024*

B.S. in Computer Science and Information Engineering; ***GPA: 3.84/4.0, Rank: 1/58***

- Honors: **Honors Graduate**(only recipient), Academic Excellence Award(top 5%, 4 semesters), Top Research Project Award
- Courses: Operating Systems, Computer Algorithms, Data Structure, Database Systems, Computer Architecture, Computer Graphic, Computer Animation
- Teaching Assistant: Calculus(2 semesters), Linear Algebra(1 semester)

Professional Experience

Research Assistant - 3D Human Pose and Shape Estimation *July 2024 – Present*

Institute of Information Science, Academia Sinica *Taiwan*

- Conducting research to develop a lightweight approach for integrating sequential knowledge into **image-based 3D human pose and shape estimation models**, improving efficiency without significantly increasing trainable parameters.
- Outperformed state-of-the-art methods by achieving a **10% parameters reduction** while maintaining consistent performance across error metrics(MVE, MPJPE, PA-MPJPE, AccelError), with potential for further improvement(ongoing research).

Visual Computing Research Assistant Intern *July 2023 – June 2024*

Institute of Information Science, Academia Sinica *Taiwan*

- Analyzed AIST++ dance dataset (images, audio) and implemented model components for music-to-dance retrieval research, contributing to a paper **accepted by ICASSP 2024** (in Publication [1]).
- Designed a 3D human animation retargeting pipeline for visualizing music-to-dance choreography, crucial for demonstrating complex dance animations in conference presentations.

Research and Development Intern - Animation Software Development *Jan. 2023 – June 2023*

Open Team, Reallusion *Taiwan*

- Developed "**BuildingGen**", a procedural 3D building generator plugin for iClone8, enabling instant creation of customizable buildings. This plugin's launch trailer achieved **51,000+ views**.
- Worked on "**Prop Distribution**" feature for iClone8's "**Crowd Simulation**" update, focusing on configurable prop generation and character-prop interactions. This update's launch trailer achieved **360,000+ views**.

Projects

Emotion-Driven Dynamic Gameplay Adaptation - Top Research Project Award | Unity, OpenCV, DeepFace, Azure Devops

- Developed real-time emotion recognition for dynamic gameplay adaptation in horror games using OpenCV and DeepFace.
- Integrated emotion data into Unity to dynamically adjust game events based on player emotions, enhancing immersion.

Locking Action Detection in Street Dance | Python, Mediapipe

- Collaborated with a local street dance club to develop a program that detects and classifies locking dance actions using MediaPipe, assisting beginners to learn faster by distinguishing between left and right side movements.

Reinforcement Learning for Legged Locomotion: Analyzing Algorithms for Agile Agents | Python, Gymnasium

- Trained legged agents in the OpenAI Gymnasium environment to evaluate their performance across various RL algorithms.

AUREOLA Table Lamp - Silver Award in ACER BeingLife IoT Contest | Arduino, Robotic arm

- Engineered a smart desk lamp using sensors and computer vision to detect shadows and writing posture, with an automated robotic arm adjusting light source for eye care and ergonomics.

Conference Volunteer Experience

- Siggraph Asia 2024 Tokyo - Student Volunteer

Skills

Programming: Python, C++, C, C#, Java, JavaScript, SQL, Shell Script, HTML, CSS

Toolkit /Framework: Git, Pytorch, Tensorflow, Blender, SMPL, mmhuman3d, Unity, Unreal Engine

Publications

[1] Bo-Wei Tseng, Kenneth Yang, **Yu-Hua Hu**, Wen-Li Wei, Jen-Chun Lin. **"MUSIC-TO-DANCE POSES: LEARNING TO RETRIEVE DANCE POSES FROM MUSIC."** *In IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2024.*