

# Wei-Chun (Alex) Huang

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## EDUCATION

### University of Wisconsin-Madison

*B.Sc. (Hons) in Computer Science; GPA: 3.98/4.0*

Madison, WI

Aug. 2020 – Dec. 2024

## EXPERIENCE

### Software Developer

March. 2023 – Sep. 2023

*Niedenthal Emotions Lab*

*Madison, WI*

- Leveraged drone footage and object detection models to track marching band members during practice.
- Increased annotation throughput by **5 times** with model-assisted labeling using **Labelbox**.
- Achieved **66 mAP** on locating and tracking **286** band members with a **Faster-RCNN model**.
- Improved the **open-source Detectron2** framework to enable dense and small detection by adapting anchor box scales and aspect ratios and customizing the COCO evaluator.

### Research Assistant

Jan. 2023 – Present

*Video Lab; Advisor: Prof. Yin Li (Computer Vision)*

*Madison, WI*

- Renovated the **open-source Ego4D** directory and streamlined the **video feature extraction** pipeline to extract video features with various mainstream models such as I3D, SlowFast, EgoVLP, CLIP, etc.
- Reduced **20%** of running time and **70%** of memory usage by customizing an iterable dataset and distributing workload across subprocesses.

### Software Engineering Intern

July. 2022 – Sep. 2022

*Zebra Technologies Corporation*

*Taipei, Taiwan*

- Developed an Android application that is used in testing the touch screens of Zebra Touch Computer Series.
- Automated screen failure detection** by triggering notifications on ghost touches, eliminating need for manual monitoring and increasing labor efficiency.
- Worked collaboratively with the Electrical Engineering team to improve the UI design of the app.

### Teaching Assistant

Sep. 2022 – May 2023

*University of Wisconsin-Madison*

*Madison, WI*

- Selected as a teaching assistant for both “Intro to Artificial Intelligence” and “Database Management Systems”.
- Held more than **80 hours** of office hours and facilitated more than **200 students** on programming assignments.

## PROJECTS

### Emotion Generation with 3D Face model | *PyTorch, Computer Vision*

Jan. 2023 - May 2022

- Researched on facial expressions in real-world videos to identify patterns for improved emotion classification.
- Modeled facial expressions with **3D Face models** and applied **Generative models** for clustering
- Built the facial feature extraction pipeline and benchmarked the results for GMM and K-Means.
- Developed an application that can **Generate 3D Faces** with specified emotion.

### Human-Aligned Vision Model | *NLP, Data Analysis, Computer Vision*

Jan. 2023 - May 2022

- Demonstrated that models trained with **semantic labels** exhibit stronger alignment with human judgments compared to those trained with traditional methods.
- Built a **Python pipeline** that streamlined the interactions with **Large Language Models** such as GPT and FLAN for Cognitive Science Researchers. Paper written on top of this project was accepted to **EMNLP 2023**.

### Real-Time Sign Language Translation | *Python, PyTorch, Flask*

Sep. 2022 - Dec. 2022

- Developed a Computer Vision application that recognizes American Sign Language characters at **97%** accuracy.
- Utilized **Mediapipe API** and ResNet18 for sign language classification to achieve strong real-time performance.

### DevJobBoard | *React Native*

Jan. 2023 – April 2023

- Developed a mobile job search app with **React Native**, integrating J-Search API for convenient user experience.
- Developed custom hooks to dynamically retrieve updated developer job listings from platforms including LinkedIn, Indeed and Glassdoor.

## TECHNICAL SKILLS

**Languages:** Python (PyTorch, OpenCV, pandas, NumPy, Matplotlib), Java, C/C++, SQL, JavaScript, HTML/CSS

**Developer Tools:** Git, Docker, Apache Spark, Hadoop, AWS, Google Cloud Platform, VS Code, Eclipse