# Wei-Chun Huang

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## Education

**University of Wisconsin-Madison** Sep. 2020 - Dec. 2024

B.S. in Computer Science and Data Science Cumulative GPA: 3.98

Technologies Python, Java, JavaScript, C++, HTML, CSS, PyTorch, Linux, GCP, React Native, Android Studio, AWS, MongoDB
Courses Deep Learning, Big Data Systems, Operating Systems, Algorithms (Honors), Artificial Intelligence (TA), Database Systems (TA)

## Experience

### Python Developer

Niedenthal Emotions Lab April 2023 – Present

- Conducted a collaborative project with social scientists at UW-Madison to quantify the degree of synchrony among marching band members.
- Developed a **Faster-RCNN** model with the **Detectron2** framework to accurately generate bounding boxes around **286** marching band members.
- Customized a COCO Evaluator to evaluate dense objects and achieved state of the art results (**66 mAP**) on band member detection.
- Utilized **Segment Anything** and **OpenCV** for extracting the football field from drone footage and obtaining model-generated coordinates.
- Built a customized COCO dataset from drone footage with **Label box** and optimized the annotation process with model-assisted labeling.

### Undergraduate Research Assistant

Advisor: Prof. Yin Li Jan. 2023 – Present

- Streamlined the **video feature extraction** pipeline for **Temporal Action Localization** tasks. Built a repository that can be used to extract features from various video datasets with mainstream models such as I3D, SlowFast, EgoVLP, CLIP, etc.
- Optimized the code to employ **throughput computing** and work on larger batch sizes, resulting in an **80%** reduction in running time.
- Customized an iterable-style dataset to better distribute workload across subprocesses and enhance video decoding efficiency.

### Undergraduate Research Assistant

Advisor: Prof. Timothy Rogers Jan. 2023 - Present

- Developed human-aligned computer vision models that achieve **zero-shot learning** and have increased robustness to **adversarial attacks**.
- Conducted representation analysis to examine the individual differences in feature space between model layers.
- Built a Python pipeline that streamlined the interactions with **Large Language Models** for other psychology researchers.

### Engineering Intern

Zebra Technologies Jun. 2022 - Sep. 2022

- Developed an **Android application** that assists hardware engineers in testing the touch screens of the Zebra Touch Computer Series.
- Designed and implemented the ghost-touch-detecting feature and the path-replay feature, which help to increase labor efficiency.
- Worked collaboratively with the electrical engineering team to iteratively improve the UI design and functionality of the application.

## Projects

### Dev Job Board

- Developed a **mobile application** that provides users with a convenient tool for job search with **React Native** and **J-Search API**.
- Created custom hooks to dynamically fetch updated developer job posts from various platforms such as LinkedIn, Indeed, Glassdoor, etc
- Implemented the job searching and filtering feature that allows users to easily search and refine job listings based on specific criteria.

### AI Image Generator

- Developed an AI application that utilizes OpenAI's **DALL-E API** to create customized images based on user-provided text with **MERN** stack.
- Host the images on **Cloudinary** for efficient storage and deployed the application with **AWS**.

### Real-Time Sign Language Translator

- Developed a computer vision Flask application that recognizes American Sign Language characters at 97% accuracy.
- Utilized **MediaPipe API** for hand landmark detection and ResNet18 for sign language classification to achieve good real-time performance.