

# Hsiang-Wei (Eddie) Huang

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## SUMMARY

I am a Ph.D. student at the University of Washington. I work in the information processing lab advised by Prof. Jenq-Neng Hwang. My current research focuses on **Vision-language models** and **3D Understanding**. See more on my [website](#).

## EDUCATION

<b>University of Washington</b> PhD in Electrical and Computer Engineering	<b>Mar 2023 – Expected 2026   Seattle</b>
<b>University of Washington</b> Master of Science in Electrical and Computer Engineering	<b>Sep 2021 – Mar 2023   Seattle</b>
<b>National Chiao Tung University</b> Bachelor of Science	<b>Sep 2017 – Dec 2020   Taiwan</b>

## WORK EXPERIENCE

<b>Research Assistant</b> <i>University of Washington</i>	<b>Mar 2022 – Current</b> Seattle, WA
<ul style="list-style-type: none"><li>Work on various research topics and projects with multiple publication records in object detection, tracking, counting, human action recognition, pose estimation, diffusion model, vision-language model, 3D understanding, and video understanding.</li></ul>	
<b>Applied Scientist Intern</b> <i>Amazon Lab 126</i>	<b>Jun 2024 – Sep 2024</b> Bellevue, WA
<ul style="list-style-type: none"><li>Work on 3D scene understanding large multi-modal models (LMs) with the Visual Perception team.</li><li>Proposed a 3D token compression method that achieve SOTA performance on multiple 3D scene understanding datasets.</li></ul>	
<b>Computer Vision Research Intern</b> <i>Chimei Automotive</i>	<b>Feb 2023 – Apr 2023</b> Taiwan
<ul style="list-style-type: none"><li>Developed a real-time multi-class FCWS (Forward Collision Warning System) for trucks and construction vehicles.</li><li>Improve vehicle LDWS (Lane Departure Warning System) accuracy by <b>30%</b> under poor visibility condition with auto encoder.</li></ul>	

## HONORS & AWARDS

<b>Taiwan Future Tech Award</b> <a href="#">[URL]</a>	<b>2024</b>
<ul style="list-style-type: none"><li>Collaborated with Taiwan National Center for High-performance Computing and proposed a traffic monitoring framework.</li><li>Awarded with the proposed <i>Digital City-Smart Traffic Congestion Prediction and Police Service Support System</i>.</li></ul>	
<b>1st Place, 2024 ICPR Multi-modal Tracking Challenge</b> <a href="#">[URL]</a>	<b>2024</b>
<ul style="list-style-type: none"><li>Secured the 1st place of the competition with 89.4 AUC among 53 participants.</li><li>Paper presented at the ICPR MMVPR workshop.</li></ul>	
<b>1st Place, 2024 WACV MaCVi Challenge - UAV-based Multi-Object Tracking and Re-Identification</b> <a href="#">[URL]</a>	<b>2024</b>
<ul style="list-style-type: none"><li>Present a meta-data aided re-identification method for long-term multi-object tracking and re-identification.</li><li>Achieved the best performance with an HOTA of 69.5 in the 2024 WACV Maritime Computer Vision Challenge.</li></ul>	
<b>1st Place, 2024 WACV MaCVi Challenge - USV-based Multi-Object Tracking</b> <a href="#">[URL]</a>	<b>2024</b>
<ul style="list-style-type: none"><li>Present a strong model ensemble method to conduct tracking on USV-based multi-object tracking.</li><li>Achieved the highest HOTA performance in the 2024 WACV Maritime Computer Vision Challenge.</li></ul>	
<b>1st Place, 2023 CVPR AI City Challenge in Multi-Camera People Tracking</b> <a href="#">[URL]</a>	<b>2023</b>
<ul style="list-style-type: none"><li>Present a robust anchor-guided clustering method for multi-camera people tracking and re-identification.</li><li>Achieved the best performance with an IDF1 of 95.36, in the 2023 AI City Challenge Track 1 on the public testing set.</li></ul>	
<b>3rd Place, 2022 ECCV DeeperAction Challenge - SportsMOT Track on Multi-actor Tracking</b> <a href="#">[URL]</a>	<b>2022</b>
<ul style="list-style-type: none"><li>Ranked <b>3rd place</b> in HOTA among over 130 teams on the final leaderboard.</li><li>Achieved over <b>73.9%</b> HOTA on sports player tracking in three different sports scenes.</li><li>Paper presented at the ECCV DeeperAction Workshop.</li></ul>	

## SELECTED PUBLICATIONS

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- **MambaMOT: State-Space Model as Motion Predictor for Multi-Object Tracking** 2025  
2025 IEEE ICASSP  
[Hsiang-Wei Huang](#), [Cheng-Yen Yang](#), [Wenhao Chai](#), [Zhongyu Jiang](#), [Jenq-Neng Hwang](#)
- **Shot-Aware and Layout-Guided Personalized Vehicle Image Generation** 2025  
In submission  
[Hsiang-Wei Huang](#), [Cheng-Yen Yang](#), [Yanting Zhang](#), [Pyongkun Kim](#), [Kwangju Kim](#), [Jenq-Neng Hwang](#)
- **Zero-shot 3D Question Answering via Voxel-based Dynamic Token Compression** 2024  
In submission to CVPR 2025  
[Hsiang-Wei Huang](#), [Fu-Chen Chen](#), [Wenhao Chai](#), [Che-Chun Su](#), [Lu Xia](#), [Sanghun Jung](#), [Cheng-Yen Yang](#), [Jenq-Neng Hwang](#), [Min Sun](#)
- **SAMURAI: Adapting SAM 2 for Visual Object Tracking with Motion Cues** 2024  
In submission to CVPR 2025  
[Cheng-Yen Yang](#), [Hsiang-Wei Huang](#), [Wenhao Chai](#), [Zhongyu Jiang](#), [Jenq-Neng Hwang](#)
- **Packaging DiTs for Joint Motion-Text Generation** 2024  
In submission to CVPR 2025  
[Zhongyu Jiang](#), [Wenhao Chai](#), [Zhuoran Zhou](#), [Cheng-Yen Yang](#), [Hsiang-Wei Huang](#), [Jenq-Neng Hwang](#)
- **Adapting SAM2 for Visual Object Tracking: 1st Place Solution for MMVPR Challenge Mutli-Modal Tracking** 2024  
2024 ICPR Workshop  
[Cheng-Yen Yang\\*](#), [Hsiang-Wei Huang\\*](#), [Pyong-Kun Kim](#), [Chien-Kai Kuo](#), [Jui-Wei Chang](#), [Jenq-Neng Hwang](#)
- **GTA: Global Tracklet Association for Multi-Object Tracking in Sports** 2024  
2024 ACCV Workshop  
[Jiacheng Sun](#), [Hsiang-Wei Huang](#), [Cheng-Yen Yang](#), [Zhongyu Jiang](#), [Jenq-Neng Hwang](#)
- **RT-Pose: A 4D Radar Tensor-based 3D Human Pose Estimation and Localization Benchmark** 2024  
ECCV 2024  
[Yuan-Hao Ho](#), [Jen-Hao Cheng](#), [Sheng Yao Kuan](#), [Zhongyu Jiang](#), [Wenhao Chai](#), [Hsiang-Wei Huang](#), [Jenq-Neng Hwang](#)
- **ToddlerAct: A Toddler Action Recognition Dataset for Gross Motor Development Assessment** 2024  
2024 ECCV Workshop  
[Hsiang-Wei Huang](#), [Jiacheng Sun](#), [Cheng-Yen Yang](#), [Zhongyu Jiang](#), [Jenq-Neng Hwang](#)
- **VersaT2I: Improving Text-to-Image Models with Versatile Reward** 2024  
Preprint  
[Jianshu Guo](#), [Wenhao Chai](#), [Jie Deng](#), [Hsiang-Wei Huang](#), [Jenq-Neng Hwang](#), [Gaoang Wang](#)
- **An Online Approach and Evaluation Method for Tracking People Across Cameras in Extremely Long Video Sequences** 2024  
2024 CVPR Workshop  
[Cheng-Yen Yang\\*](#), [Hsiang-Wei Huang\\*](#), [Pyong-Kun Kim](#), [Zhongyu Jiang](#), [Jenq-Neng Hwang](#)
- **Iterative Scale-up Expansion and Deep Features Association for Multi-Object Tracking in Sports** 2024  
2024 WACV Workshop  
[Hsiang-Wei Huang](#), [Cheng-Yen Yang](#), [Jiacheng Sun](#), [Pyong-Kun Kim](#), [Kwang-Ju Kim](#), [Chung-I Huang](#), [Jenq-Neng Hwang](#)
- **Sea You Later: Metadata-Guided Long-Term Re-Identification for UAV-Based Multi-Object Tracking** 2024  
2024 WACV Workshop  
[Cheng-Yen Yang](#), [Hsiang-Wei Huang](#), [Zhongyu Jiang](#), [Heng-Cheng Kuo](#), [Jie Mei](#), [Jenq-Neng Hwang](#)
- **A Density-Guided Temporal Attention Transformer for Indiscernible Object Counting in Underwater Videos** 2024  
2024 IEEE ICASSP  
[Cheng-Yen Yang](#), [Hsiang-Wei Huang](#), [Zhongyu Jiang](#), [Hao Wang](#), [Farron Wallace](#), [Jenq-Neng Hwang](#)
- **Boosting Online 3D Multi-Object Tracking through Camera-Radar Cross Check** 2024  
2024 IEEE Intelligent Vehicles Symposium  
[Sheng-Yao Kuan](#), [Jen-Hao Cheng](#), [Hsiang-Wei Huang](#), [Jenq-Neng Hwang](#)
- **Enhancing Multi-Camera People Tracking with Anchor-Guided Clustering and ID Re-Assignment** 2023  
2023 CVPR Workshop  
[Hsiang-Wei Huang\\*](#), [Cheng-Yen Yang\\*](#), [Zhongyu Jiang](#), [Jenq-Neng Hwang](#)
- **Observation Centric and Central Distance Recovery for Athlete Tracking** 2023  
2023 WACV Workshop  
[Hsiang-Wei Huang](#), [Cheng-Yen Yang](#), [Samartha Ramkumar](#), [Chung-I Huang](#), [Jenq-Neng Hwang](#)