

Hsiang-Wei (Eddie) Huang

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SUMMARY

I am a 2nd year Ph.D. student studying Electrical and Computer Engineering 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**.

EDUCATION

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

WORK EXPERIENCE

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

SKILLS

Programming Languages : Python, SQL, C, Matlab

Software Tools : Pytorch, Tensorflow, Numpy, Scikit-learn, Pandas, OpenCV, Linux, Git, AWS, Azure, SQLite3, LaTeX

Languages : English, Chinese

HONORS & AWARDS

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

PUBLICATIONS

- **Zero-shot 3D Question Answering via Voxel-based Token Compression** 2024
Hsiang-Wei Huang and Amazon CoRo Team – In submission to CVPR
- **SAMTrack: Adapting SAM 2 for Visual Object Tracking with Motion Cues** 2024
Cheng-Yen Yang, Hsiang-Wei Huang, Wenhao Chai, Jenq-Neng Hwang – In submission to CVPR
- **MambaMOT: State-Space Model as Motion Predictor for Multi-Object Tracking** 2024
Hsiang-Wei Huang, Cheng-Yen Yang, Wenhao Chai, Zhongyu Jiang, Jenq-Neng Hwang – In submission
- **Packaging DiTs for Joint Motion-Text Generation** 2024
Zhongyu Jiang, Wenhao Chai, Zhuoran Zhou, Cheng-Yen Yang, Hsiang-Wei Huang, and Jenq-Neng Hwang – In submission
- **Adapting SAM2 for Visual Object Tracking** 2024
Cheng-Yen Yang, Hsiang-Wei Huang*, Pyong-Kun Kim, Chien-Kai Kuo, Jui-Wei Chang, Jenq-Neng Hwang – 2024 ICPR Workshop*
- **GTA: Global Tracklet Association for Multi-Object Tracking in Sports** 2024
Jiacheng Sun, Hsiang-Wei Huang, Cheng-Yen Yang, Zhongyu Jiang, Jenq-Neng Hwang – 2024 ACCV Workshop
- **ToddlerAct: A Toddler Action Recognition Dataset for Gross Motor Development Assessment** 2024
Hsiang-Wei Huang, Jiacheng Sun, Cheng-Yen Yang, Zhongyu Jiang, Jenq-Neng Hwang – 2024 ECCV Workshop
- **Exploring Learning-based Motion Models in Multi-Object Tracking** 2024
Hsiang-Wei Huang, Cheng-Yen Yang, Wenhao Chai, Zhongyu Jiang, Jenq-Neng Hwang – Preprint
- **VersaT2I: Improving Text-to-Image Models with Versatile Reward** 2024
Jianshu Guo, Wenhao Chai, Jie Deng, Hsiang-Wei Huang, Jenq-Neng Hwang, Gaoang Wang – Preprint
- **RT-Pose: A 4D Radar-Tensor based 3D Human Pose Estimation and Localization Benchmark** 2024
Yuan-Hao Ho, Jen-Hao Cheng, Sheng-Yao Kuan, Zhongyu Jiang, Wenhao Chai, Hsiang-Wei Huang, Jenq-Neng Hwang – ECCV 2024
- **An Online Approach and Evaluation Method for Tracking People Across Cameras in Extremely Long Video Sequence** 2024
Cheng-Yen Yang, Hsiang-Wei Huang*, Pyong-Kun Kim, Zhongyu Jiang, Jenq-Neng Hwang – 2024 CVPR Workshop*
- **Iterative Scale-Up ExpansionIoU and Deep Features Association for Multi-Object Tracking in Sports** 2024
Hsiang-Wei Huang, Cheng-Yen Yang, Jiacheng Sun, Jenq-Neng Hwang – 2024 WACV Workshop
- **Sea You Later: Metadata-Guided Long-Term Re-Identification for UAV-Based Multi-Object Tracking** 2024
Cheng-Yen Yang, Hsiang-Wei Huang, Zhongyu Jiang, Heng-Cheng Kuo, Jie Mei, Jenq-Neng Hwang – 2024 WACV Workshop
- **A Density-Guided Temporal Attention Transformer for Indiscernible Object Counting in Underwater Videos** 2024
Cheng-Yen Yang, Hsiang-Wei Huang, Zhongyu Jiang, Hao Wang, Farron Wallace, Jenq-Neng Hwang – 2024 IEEE ICASSP
- **Boosting Online 3D Multi-Object Tracking through Camera-Radar Cross Check** 2024
Sheng-Yao Kuan, Jen-Hao Cheng, Hsiang-Wei Huang, Jenq-Neng Hwang – 2024 IEEE Intelligent Vehicles Symposium
- **Enhancing Multi-Camera People Tracking with Anchor-Guided Clustering and ID Re-Assignment** 2023
Hsiang-Wei Huang, Cheng-Yen Yang*, Zhongyu Jiang, Jenq-Neng Hwang – 2023 CVPR Workshop*
- **Observation Centric and Central Distance Recovery for Athlete Tracking** 2023
Hsiang-Wei Huang, Cheng-Yen Yang, Jenq-Neng Hwang – 2023 WACV Workshop