

Hsiang-Wei (Eddie) Huang

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SUMMARY

I am a Ph.D. candidate 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**, **Large Language Models** and **3D Understanding**. See more on my [website](#).

EDUCATION

University of Washington - Seattle PhD in Electrical and Computer Engineering	Mar 2023 – Expected 2026 Seattle
University of Washington - Seattle 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

Applied Scientist Intern <i>Amazon Lab 126</i> <ul style="list-style-type: none">Work on 3D scene understanding Large Language Models (LLMs).	Jun 2025 – Sep 2025 Bellevue, WA
Applied Scientist Intern <i>Amazon Lab 126</i> <ul style="list-style-type: none">Work on 3D scene understanding Large Language Models (LLMs) and open-vocabulary indoor 3D instance segmentation.Proposed a VLM token compression method that achieve SOTA performance on various 3D understanding benchmarks.First-author paper Zero-shot 3D Question Answering via Voxel-based Dynamic Token Compression accepted by CVPR 2025.	Jun 2024 – Sep 2024 Bellevue, WA
Research Assistant <i>University of Washington</i> <ul style="list-style-type: none">I 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.	Mar 2022 – Current Seattle, WA
AI Research Intern <i>Chimei Motor</i> <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.	Feb 2023 – Apr 2023 Taiwan

PUBLICATIONS

Conference Paper	
<ul style="list-style-type: none">Zero-shot 3D Question Answering via Voxel-based Dynamic Token Compression 2025 <i>Computer Vision and Pattern Recognition (CVPR)</i> <i>Hsiang-Wei Huang, Fu-Chen Chen, Wenhao Chai, Che-Chun Su, Lu Xia, Sanghun Jung, Cheng-Yen Yang, Jenq-Neng Hwang, Min Sun, Cheng-hao Kuo</i>ToSA: Token Merging with Spatial Awareness 2025 <i>International Conference on Intelligent Robots and Systems (IROS)</i> <i>Hsiang-Wei Huang, Wenhao Chai, Kuang-Ming Chen, Cheng-Yen Yang, Jenq-Neng Hwang</i>3D Visual Grounding with Reasoning LLM 2025 <i>CVPR 3D-LLM&VLA Workshop</i> <i>Hsiang-Wei Huang, Kuang-Ming Chen, Wenhao Chai, Cheng-Yen Yang, Jenq-Neng Hwang</i>MambaMOT: State-Space Model as Motion Predictor for Multi-Object Tracking 2025 <i>International Conference on Acoustics, Speech, and Signal Processing (IEEE ICASSP)</i> <i>Hsiang-Wei Huang, Cheng-Yen Yang, Wenhao Chai, Zhongyu Jiang, Jenq-Neng Hwang</i>Warehouse Spatial Question Answering with LLM Agent 2025 <i>ICCV Workshop</i> <i>Hsiang-Wei Huang, Jen-Hao Cheng, Kuang-Ming Chen, Cheng-Yen Yang, Bahaa Alattar, Yi-Ru Lin, Pyongkun Kim, Sangwon Kim, Kwangju Kim, Chung-I Huang, Jenq-Neng Hwang</i>	

- Details Matter for Indoor Open-vocabulary 3D Instance Segmentation**

International Conference on Computer Vision (ICCV)

Sanghun Jung, Jingjing Zheng, Ke Zhang, Nan Qiao, Albert Y. C. Chen, Lu Xia, Chi Liu, Yuyin Sun, Xiao Zeng, Hsiang-Wei Huang

Byron Boots, Min Sun, Cheng-Hao Kuo

2025
- DAMURA: A Depth-Aware Robust Multi-Object Tracker for Crowded Scene by Re-Prioritizing Association Order**

International Conference on Advanced Visual and Signal-Based Systems (IEEE AVSS)

Cheng-Yen Yang, Hsiang-Wei Huang, Kuang-Ming Chen, Kunjun Li, Farron Wallace, Chung-I Huang, Jenq-Neng Hwang

2025
- RT-Pose: A 4D Radar Tensor-based 3D Human Pose Estimation and Localization Benchmark**

European Conference on Computer Vision (ECCV)

Yuan-Hao Ho, Jen-Hao Cheng, Sheng Yao Kuan, Zhongyu Jiang, Wenhao Chai, Hsiang-Wei Huang, Chih-Lung Lin, Jenq-Neng Hwang

2024
- Adapting SAM2 for Visual Object Tracking: 1st Place Solution for MMVPR Challenge Mutli-Modal Tracking**

ICPR MMVPR Workshop

Cheng-Yen Yang*, Hsiang-Wei Huang*, Pyong-Kun Kim, Chien-Kai Kuo, Jui-Wei Chang, Jenq-Neng Hwang

2024
- GTA: Global Tracklet Association for Multi-Object Tracking in Sports**

ACCV MLCSA Workshop

Jiacheng Sun, Hsiang-Wei Huang, Cheng-Yen Yang, Zhongyu Jiang, Jenq-Neng Hwang

2024
- ToddlerAct: A Toddler Action Recognition Dataset for Gross Motor Development Assessment**

ECCV ABAW Workshop

Hsiang-Wei Huang, Jiacheng Sun, Cheng-Yen Yang, Zhongyu Jiang, Jenq-Neng Hwang

2024
- An Online Approach and Evaluation Method for Tracking People Across Cameras in Extremely Long Video Sequences**

CVPR AI City Challenge Workshop

Cheng-Yen Yang*, Hsiang-Wei Huang*, Pyong-Kun Kim, Zhongyu Jiang, Jenq-Neng Hwang

2024
- Iterative Scale-up Expansion and Deep Features Association for Multi-Object Tracking in Sports**

WACV RWS Workshop

Hsiang-Wei Huang, Cheng-Yen Yang, Jiacheng Sun, Pyong-Kun Kim, Kwang-Ju Kim, Chung-I Huang, Jenq-Neng Hwang

2024
- Sea You Later: Metadata-Guided Long-Term Re-Identification for UAV-Based Multi-Object Tracking**

WACV MaCVi Workshop

Cheng-Yen Yang, Hsiang-Wei Huang, Zhongyu Jiang, Heng-Cheng Kuo, Jie Mei, Jenq-Neng Hwang

2024
- A Density-Guided Temporal Attention Transformer for Indiscernible Object Counting in Underwater Videos**

International Conference on Acoustics, Speech, and Signal Processing (ICASSP)

Cheng-Yen Yang, Hsiang-Wei Huang, Zhongyu Jiang, Hao Wang, Farron Wallace, Jenq-Neng Hwang

2024
- Boosting Online 3D Multi-Object Tracking through Camera-Radar Cross Check**

IEEE Intelligent Vehicles Symposium (IEEE IV)

Sheng-Yao Kuan, Jen-Hao Cheng, Hsiang-Wei Huang, Wenhao Chai, Cheng-Yen Yang, Hugo Latapie, Gaowen Liu, Bing-Fei Wu, Jenq-Neng Hwang

2024
- Enhancing Multi-Camera People Tracking with Anchor-Guided Clustering and ID Re-Assignment**

CVPR AI City Challenge Workshop

Hsiang-Wei Huang*, Cheng-Yen Yang*, Zhongyu Jiang, Pyong-Kun Kim, Kyoungoh Lee, Kwangju Kim, Samartha Ramkumar, Chaitanya Mullapudi, In-Su Jang, Chung-I Huang, Jenq-Neng Hwang

2023
- Observation Centric and Central Distance Recovery for Athlete Tracking**

WACV CV4WS Worksop

Hsiang-Wei Huang, Cheng-Yen Yang, Samartha Ramkumar, Chung-I Huang, Jenq-Neng Hwang, Pyong-Kun Kim, Kyoungoh Lee, Kwangju Kim

2023
- Preprint & Under Review**
- Shot-Aware and Layout-Guided Personalized Vehicle Image Generation**

Under Review

Hsiang-Wei Huang, Cheng-Yen Yang, Yanting Zhang, Pyongkun Kim, Kwangju Kim, Jenq-Neng Hwang

2025
- CLEP: Contrastive Language-Pose Pretraining**

Under Review

Sen Jia, Huayu Wang, Hsiang-Wei Huang, Zhaochong An, Jenq-Neng Hwang, Lei Li

2025

- **TEMPURA: Temporal Event Masked Prediction and Understanding for Reasoning in Action** 2025
Under Review
Jen-Hao Cheng, Vivian Wang, Huayu Wang, Huapeng Zhou, Yi-Hao Peng, Hou-I Liu, Hsiang-Wei Huang, Kuang-Ming Chen, Cheng-Yen Yang, Wenhao Chai, Yi-Ling Chen, Vibhav Vineet, Qin Cai, Jenq-Neng Hwang
- **Technical Report for ReID-SAM on SkiTB Visual Tracking Challenge 2025** 2025
Technical Report
Kunjun Li, Cheng-Yen Yang, Hsiang-Wei Huang, Jenq-Neng Hwang
- **SAMURAI: Adapting SAM 2 for Visual Object Tracking with Motion Cues** 2024
Under Review
Cheng-Yen Yang, Hsiang-Wei Huang, Wenhao Chai, Zhongyu Jiang, Jenq-Neng Hwang
- **PackDiT: Joint Human Motion and Text Generation via Mutual Prompting** 2024
Under Review
Zhongyu Jiang, Wenhao Chai, Zhuoran Zhou, Cheng-Yen Yang, Hsiang-Wei Huang, Jenq-Neng Hwang
- **VersaT2I: Improving Text-to-Image Models with Versatile Reward** 2024
Arxiv Preprint
Jianshu Guo, Wenhao Chai, Jie Deng, Hsiang-Wei Huang, Jenq-Neng Hwang, Gaoang Wang

HONORS & AWARDS

1st Place, ICCV AI City Challenge in Warehouse Spatial Question Answering [URL]

- Secured the 1st place of the competition with 95.8% question answering accuracy.
- Paper "Warehouse Spatial Question Answering with LLM Agent" presented at the ICCV AI City Challenge workshop.

1st Place, CVPR AI City Challenge in Multi-Camera People Tracking [URL]

- 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.

1st Place, ICPR Multi-modal Tracking Challenge [URL]

- Secured the 1st place of the competition with 89.4 AUC among 53 participants.
- Paper presented at the ICPR MMVPR workshop.

1st Place, WACV MaCVi Challenge - UAV-based Multi-Object Tracking and Re-Identification [URL]

- 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, WACV MaCVi Challenge - USV-based Multi-Object Tracking [URL]

- 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.

2nd Place, WACV SkiTB Visual Tracking Challenge [URL]

- Mentored an undergraduate student and secured the 2nd place of the competition with 87.0 F1 score.
- Solution presented at the WACV CV4WS workshop.

3rd Place, ECCV DeeperAction Challenge - SportsMOT Track on Multi-actor Tracking [URL]

- Achieved over 73.9 HOTA on sports player tracking in three different sports scenes.
- Solution presented at the ECCV DeeperAction Workshop.

Taiwan Future Tech Award [URL]

- Collaborated with Taiwan National Center for High-performance Computing and proposed a traffic monitoring framework.
- Awarded with the proposed *Digital City-Smart Traffic Congestion Prediction and Police Service Support System*.