

Yuan-Hong Liao

📍 Toronto, Canada ✉ andrew@cs.toronto.edu 🔗 <https://andrewliao11.github.io> 🌐 andrewliao11

Research Interests

Multi-modality: 1) Developing agentic workflows to enable self-correction and 2) managing visual uncertainty to improve reasoning in large vision-language models.

Data: Post-hoc approaches to enhance label quality. Large-scale synthetic data generation.

Education

University of Toronto Sept 2019 – July 2025
Ph.D. in Computer Science

- Supervisor: [Professor Sanja Fidler](#) [🔗](#)
- Ph.D. thesis: Enhancing Vision Model Predictions with Better Data and Inference.

National Tsing-Hua University Sept 2013 – June 2017
B.S. in Electrical Engineering

- Supervisor: [Professor Min Sun](#) [🔗](#)
- Multi-modal research including image/video captioning

Experience

Applied Scientist Intern Bellevue, WA
Amazon Lab 126 July 2024 – Oct 2024

- In-context learning and parameter-efficient fine-tuning in multimodal-LLMs.

Research Scientist Intern Toronto, ON
Nvidia June 2022 – May 2023

- Two papers in object detection transfer learning, [CARE](#) [🔗](#) in TMLR'23 and [LabelTransfer](#) [🔗](#) in ICLR'24.
- Organized and presented a company-wide seminar on image data labeling.

Publications

Can Feedback Enhance Semantic Grounding in Large Vision-Language Models? arXiv 2024

Yuan-Hong Liao, Rafid Mahmood, Sanja Fidler, David Acuna

Reasoning Paths with Reference Objects Elicit Quantitative Spatial Reasoning in Large Vision-Language Models EMNLP 2024

Yuan-Hong Liao, Rafid Mahmood, Sanja Fidler, David Acuna

Translating Labels to Solve Annotation Mismatches Across Object Detection Datasets ICLR 2024

Yuan-Hong Liao, David Acuna, Rafid Mahmood, James Lucas, Viraj Prabhu, Sanja Fidler

Bridging the Sim2Real gap with CARE, Supervised Detection Adaptation with Conditional Alignment and Reweighting TMLR 2023

Viraj Prabhu, David Acuna, Rafid Mahmood, James Lucas, *Yuan-Hong Liao*, Judy Hoffman, Sanja Fidler, James Lucas

LA-BALD: An Information-Theoretic Image Labeling Task Sampler arXiv 2022

Yuan-Hong Liao, Sanja Fidler

Towards Good Practices for Efficiently Annotating Large-Scale Image Classification Datasets CVPR2021 Oral

Yuan-Hong Liao, Amlan Kar, Sanja Fidler

Emergent Road Rules in Multi-Agent Driving Environments	ICLR 2021
Avik Pal, Jonah Philion, <u>Yuan-Hong Liao</u> , Sanja Fidler	
Watch-and-Help: A Challenge for Social Perception and Human-AI Collaboration	ICLR 2021
Xavier Puig, Tiamin Shu, Shuang Li, Zilin Wang, <u>Yuan-Hong Liao</u> , Josha Tenenbaum, Sanja Fidler, Antonio Torralba	
Synthesizing Environment-Aware Activities via Activity Sketches	CVPR 2019
<u>Yuan-Hong Liao</u> *, Xavier Puig*, Marko Boben, Antonio Torralba, Sanja Fidler	
Show, adapt and tell: Adversarial training of cross-domain image captioner	ICCV 2017
Tseng-Hung Chen, <u>Yuan-Hong Liao</u> , Ching-Yao Chuang, Wan-Ting Hsu, Jianlong Fu, Min Sun	
Tactics of adversarial attack on deep reinforcement learning agents	IJCAI 2017
Yen-Chen Lin, Zhang-Wei Hong, <u>Yuan-Hong Liao</u> , Meng-Li Shih, Ming-Yu Liu, Min Sun	
Leveraging video descriptions to learn video question answering	AAAI 2017
Kuo-Hao Zeng, ZTseng-Hung Chen, Ching-Yao Chuang, <u>Yuan-Hong Liao</u> , Juan Carlos Niebles, Min Sun	

Open-source Projects

OpenAI baselines

github.com/openai/baselines



- Major contributor to the algorithm "Generative Adversarial Imitation Learning". See contributions at [here](#)