

Yen-Cheng Liu

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Education	Georgia Tech , Atlanta, GA <i>Ph.D.</i> , Machine Learning, <i>GPA: 4.00/4.00</i>	Aug. 2018 - Dec. 2023
	National Taiwan University , Taipei, Taiwan <i>M.S.</i> , Electrical Engineering, <i>GPA: 4.19/4.30</i>	Sep. 2015 - June 2017
	National Chiao Tung University , Hsinchu, Taiwan <i>B.S.</i> , Electrical and Computer Engineering, <i>GPA: 4.24/4.30</i>	Sep. 2011 - June 2015
Research Summary	I am currently exploring media generation, with a particular focus on video and image generation. One of my recent projects is Meta Movie Gen , a cast of sophisticated foundation models designed for media generation (video, image, and audio). Before this, my PhD research centers on enhancing the efficiency of model parameters, data, and label annotations in the training of large-scale machine learning models, which rely on substantial foundation models trained on vast datasets and labels.	
Experience	Meta <i>Research Scientist</i> Generative AI team	Jan. 2024 - Present
	<ul style="list-style-type: none">• Served as a core contributor to Meta Movie Gen, a foundation model for media generation• Developed Animate Image-to-Video Models for Meta AI	
	Meta <i>Visiting Researcher</i> Generative AI team	June 2023 - Dec 2023
	<ul style="list-style-type: none">• Developed the Emu text-to-image generation model, which powers several Meta products	
	Meta <i>Research Intern</i>	May 2022 - Dec. 2022
	Collaborators: Kungpeng Li, Xiaoliang Dai, Chih-Yao Ma, Zijian He, Peter Vajda	
	<ul style="list-style-type: none">• Developed parameter-efficient multi-task adaptation of foundation models [NeurIPS'22]• Reduced 90% trainable parameters while maintaining multi-task accuracy gains	
	Facebook Research <i>Research Intern</i>	May 2021 - Dec. 2021
	Collaborators: Xiaoliang Dai, Chih-Yao Ma, Zijian He	
	<ul style="list-style-type: none">• Improved object detectors with large-scale <i>unconstrained</i> unlabeled images [ECCV'22]• Improved object localization in semi-supervised manner with SoTA results [CVPR'22]	
	Facebook Research <i>Research Intern</i>	May 2020 - Aug. 2020
	Collaborators: Chih-Yao Ma, Zijian He, Peizhao Zhang, Kan Chen, Peter Vajda	
	<ul style="list-style-type: none">• Reduced label annotations for training object detectors and achieving SoTA results in semi-supervised object detection [ICLR'21]	
	Georgia Tech <i>Graduate Research Assistant</i> Advisor: Prof. Zolt Kira	Aug. 2018 - Dec. 2023
	<ul style="list-style-type: none">• Developed machine learning techniques under limited supervision (<i>e.g.</i>, few-shot learning, semi-supervised learning, etc.) [ICLR'19, ICLR'21, CVPR'22, ECCV'22]• Initiated a new research area focused on multi-agent collaborative perception [ICRA'20,	

CVPR'20, IROS'21]

- Investigated and benchmarked on continual learning [NeurIPS'18]

National Taiwan University

July 2016 - July 2018

Research Assistant

Advisor: Prof. Yu-Chiang Frank Wang

- Applied generative models to address domain adaptation problems [CVPR'18, NeurIPS'18]
- Improved depth estimation accuracy with aid of semantic priors [CVPR'19]
- Investigated and benchmarked on few-shot classification [ICLR'19]

Selected Publications

- [1] J. Tian, X. Dai, C.-Y. Ma, Z. He, **Y.-C. Liu**, Zsolt Kira. Trainable Projected Gradient Method for Robust Fine-Tuning, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023
- [2] **Y.-C. Liu**, C.-Y. Ma, Z. He, Z. Kira. Polyhistor: Parameter-Efficient Multi-Task Adaptation for Dense Vision Tasks, *Conference on Neural Information Processing Systems (NeurIPS)*, 2022
- [3] **Y.-C. Liu**, C.-Y. Ma, X. Dai, J. Tian, P. Vajda, Z. He, Z. Kira. Open-set Semi-Supervised Object Detection, *European Conference on Computer Vision (ECCV)*, 2022 **(Oral)**
- [4] **Y.-C. Liu**, C.-Y. Ma, Z. Kira. Unbiased Teacher v2: Semi-supervised Object Detection for Anchor-free and Anchor-based Detectors, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022
- [5] **Y.-C. Liu**, C.-Y. Ma, Z. He, C.-W. Kuo, K. Chen, P. Zhang, B. Wu, Z. Kira, P. Vajda. Unbiased Teacher for Semi-Supervised Object Detection, *International Conference on Learning Representations (ICLR)*, 2021
- [6] N. Glaser, **Y.-C. Liu**, J. Tian, Z. Kira. Overcoming Obstructions via Bandwidth-Limited Multi-Agent Spatial Handshaking, *International Conference on Intelligent Robots and Systems (IROS)*, 2021
- [7] J. Tian, **Y.-C. Liu**, N. Glaser, Y.-C. Hsu, Z. Kira. Posterior Re-calibration for Imbalanced Datasets, *Conference on Neural Information Processing Systems (NeurIPS)*, 2020
- [8] **Y.-C. Liu**, J. Tian, N. Glaser, Z. Kira. When2com: Multi-Agent Collaborative Perception via Communication Graph Grouping, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020
- [9] **Y.-C. Liu**, J. Tian, C.-Y. Ma, N. Glaser, C.-W. Kuo, Z. Kira. Who2com: Collaborative Perception via Learnable Handshake communication, *International Conference on Robotics and Automation (ICRA)*, 2020
- [10] J. Tian, W. Chung, N. Glaser, **Y.-C. Liu**, Z. Kira. UNO: Uncertainty-aware Noisy-Or Multimodal Fusion for Unanticipated Input Degradation, *International Conference on Robotics and Automation (ICRA)*, 2020
- [11] P.-Y. Chen*, A. Liu*, **Y.-C. Liu**, Y.-C. F. Wang. Towards Scene Understanding: Unsupervised Monocular Depth Estimation with Semantic-aware Representation, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019 **(Oral; * equal contributions)**

- [12] W.-Y. Chen, **Y.-C. Liu**, Z. Kira, Y.-C. F. Wang, J.-B. Huang. A Closer Look at Few-shot Classification, *International Conference on Learning Representations (ICLR)*, 2019
- [13] A. Liu, **Y.-C. Liu**, Y.-Y Yeh, Y.-C. F. Wang. A Unified Feature Disentangler for Multi-Domain Image Translation and Manipulation, *Conference on Neural Information Processing Systems (NeurIPS)*, 2018
- [14] **Y.-C. Liu**, Y.-Y Yeh, T.-C. Fu, S.-D. Wang, W.-C. Chiu, Y.-C. F. Wang. Detach and Adapt: Learning Cross-Domain Disentangled Deep Representation, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018 (**Spotlight**)
- [15] J. Tian, W. Cheung, N. Glaser, **Y.-C. Liu**, Z. Kira. UNO: Uncertainty-aware Noisy-Or Multimodal Fusion for Unanticipated Input Degradation, *International Conference on Intelligent Robots and Systems (IROS Workshops)*, 2019
- [16] Y.C. Hsu, **Y.-C. Liu**, Z. Kira. Re-evaluating Continual Learning Scenarios: A Categorization and Case for Strong Baselines, *Conference on Neural Information Processing Systems Workshops (NeurIPS Workshops)*, 2018

**Academic
Services**

Reviewer: CVPR 2019-22, ICCV 2019-21, AAAI 2020, ECCV 2020, NeurIPS 2020-22, ICLR 2021-23, ICML 2021-22, PAMI, IJCV