Yu-Jhe Li

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Research Interests

Computer Vision and Machine learning, particularly in visual representation learning in machine perception and generation, unsupervised domain adaptation, data/label efficiency learning, and cross-modality learning in generative AI, autonomous systems, and XR applications.

Education

Carnegie Mellon University *Aug. 2020 - Sep. 2023*
Ph.D. in Electrical and Computer Engineering (Advisor: Prof. Kris Kitani) GPA: 4.0/4.0

National Taiwan University *Sep. 2017 - Jan. 2019*
M.S. in Communication Engineering (Advisor: Prof. Yu-Chiang Frank Wang) GPA: 4.18/4.3

National Tsing Hua University *Sep. 2013 - Jan. 2017*
B.S. in Electrical Engineering and Computer Science Major GPA: 4.09/4.3

Work and Research Experience

Microsoft Dec. 2023 - Present
Research Scientist *at Responsible and OpenAI Research (ROAR)* *Redmond, WA, USA*

- Cross-modality learning in generative AI and responsible AI.

Adobe May. 2023 - Nov. 2023
Research Intern*, working with Xinyang Zhang, Xin Lu, and Ajinkya Kale* *San Jose, CA, USA*

- Strengthen the generalization of the segmentation model to unseen domains.

The Robotics Institute, Carnegie Mellon University Aug. 2019 - Sep. 2023
Ph.D. student *and* ***Research Associate****, working with Kris Kitani* *Pittsburgh, PA, USA*

- 3D human pose estimation with multi-view depth cameras.
- Radar azimuth super-resolution for vehicle detection.
- Lidar-Radar fusion for vehicle detection.
- Domain-specific segmentation model for crack and rust detection.
- Multi-camera multi-person tracking for in-the-wild data.
- Clothing color invariant representation learning.

Meta May. 2022 - Aug. 2022
Research Intern*, working with Tao Xu, Bichen Wu, Albert Pumarola* *Burlingame, CA, USA*

- GAN inversion of style-based neural radiance fields (NeRFs).
- Contrastive latent diffusion for latent-based neural radiance fields (NeRFs).

Facebook (now Meta) May. 2021 - Aug. 2021
Research Intern*, working with Xiaoliang Dai, Chih-Yao Ma, Kan Chen* *Menlo Park, CA, USA*

- Unsupervised domain adaptation in object detection.

Vision and Learning Lab, National Taiwan University Sep. 2017 - Jul. 2019
Graduate Research Assistant*, working with Prof. Yu-Chiang Frank Wang* *Taipei, Taiwan*

- Unsupervised learning and domain adaptation in re-identification via unsupervised pose disentanglement.
- Learned resolution-invariant representations for cross-resolution tasks.

Selected Publications (full list here)

Conference Papers:

1. **Yu-Jhe Li**, Shawn Hunt, Jinhyung Park, Matthew O'Toole, Kris Kitani. "Azimuth Super-Resolution for Autonomous Driving." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR).* Jun 2023.
2. **Yu-Jhe Li**, Matthew O'Toole, Kris Kitani. "ST-MVDNet++: Improve Vehicle Detection with Lidar-Radar Geometrical Augmentation via Self-Training." *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP).* June 2023.
3. Takehiko Ohkawa, **Yu-Jhe Li**, Qichen Fu, Ryosuke Furuta, Kris Kitani, and Yoichi Sato. "Domain Adaptive Hand Keypoint and Pixel Localization in the Wild ." *European Conference on Computer Vision (ECCV).* Oct 2022.
4. **Yu-Jhe Li**, Jinhyung Park, Matthew O'Toole, Kris Kitani. "Modality-Agnostic Learning for Radar-Lidar Fusion in Vehicle Detection ." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR).* Jun 2022.
5. **Yu-Jhe Li**, Xiaoliang Dai, Chih-Yao Ma, Yen-Cheng Liu, Kan Chen, Bichen Wu, Zijian He, Kris Kitani, Peter Vadja. "Cross-Domain Adaptive Teacher for Object Detection." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR).* Jun 2022.
6. **Yu-Jhe Li**, Xinshuo Weng, Yan Xu, and Kris Kitani. "Visio-Temporal Attention for Multi-Camera Multi-Target Association." *IEEE International Conference on Computer Vision (ICCV).* Oct. 2021.
7. Yan Xu, **Yu-Jhe Li**, Xinshuo Weng, and Kris Kitani. "Wide-Baseline Multi-Camera Calibration using Person Re-Identification." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR).* Jun 2021.
8. **Yu-Jhe Li**, Xinshuo Weng, Kris Kitani. "Learning Shape Representations for Person Re-identification under Clothing Change." *Winter Conference on Applications of Computer Vision (WACV).* Jan 2021.
9. Yen-Ting Liu, **Yu-Jhe Li**, and Yu-Chiang Frank Wang. "Transforming Video Concepts into Video Summarization." *Asian Conference on Computer Vision (ACCV).* Nov 2020.
10. **Yu-Jhe Li**, Ci-Siang Lin, Yan-Bo Lin, and Yu-Chiang Frank Wang. "Cross-Dataset Person Re-Identification via Unsupervised Pose Disentanglement and Adaptation." *IEEE International Conference on Computer Vision (ICCV).* Nov 2019.
11. **Yu-Jhe Li***, Yun-Chun Chen*, Yen-Yu Lin, Xiaofei Du, and Yu-Chiang Frank Wang. "Recover and Identify: Generative Dual Model for Cross-Resolution Person Re-Identification." *IEEE International Conference on Computer Vision (ICCV).* Nov 2019. (* indicates equal contribution)
12. Wen-Hsuan Chu, **Yu-Jhe Li**, Jing-Cheng Chang, and Yu-Chiang Frank Wang. "Spot and Learn: A Maximum-Entropy Image Patch Sampler for Few-Shot Classification." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR).* Jun 2019.
13. Yan-Bo Lin, **Yu-Jhe Li**, and Yu-Chiang Frank Wang. "Dual-modality Seq2seq Network for Audio-Visual Event Localization." *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP).* May 2019.
14. Yun-Chun Chen*, **Yu-Jhe Li***, XiaoFei Du, and Yu-Chiang Frank Wang. " Learning Resolution-Invariant Deep Representations for Person Re-Identification." *AAAI Conference on Artificial Intelligence (AAAI).* Jan 2019. (* indicates equal contribution)
15. **Yu-Jhe Li**, Hsin-Yu Chang, Yu-Jing Lin, Po-Wei Wu, and Yu-Chiang Frank Wang. "Deep Reinforcement Learning for Playing 2.5D Fighting Games." *IEEE International Conference on Image Processing (ICIP).* Oct 2018.
16. **Yu-Jhe Li**, Fu-En Yang, Yen-Cheng Liu, Yu-Ying Yeh, Xiao-Fei Du, and Yu-Chiang Frank Wang. "Adaptation and Re-Identification Network: An Unsupervised Deep Transfer Learning Approach to Person Re-Identification." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops.* Jun 2018.

Pre-prints or reports:

- **Yu-Jhe Li**, Tao Xu, Ji Hou, Bichen Wu, Xiaoliang Dai, Albert Pumarola, Peizhao Zhang, Peter Vajda, Kris Kitani. " 3D-CLFusion: Fast Text-to-3D Rendering with Contrastive Latent Diffusion." *(In Arxiv 2023)*
- **Yu-Jhe Li**, Tao Xu, Bichen Wu, Ningyuan Zheng, Xiaoliang Dai, Albert Pumarola, Peizhao Zhang, Peter Vajda, Kris Kitani. "3D-Aware Encoding for Style-based Neural Radiance Fields." *(In Arxiv 2022)*

Teaching Experience

Carnegie Mellon University
Teaching Assistant *USA*

- 18-661: Introduction to Machine Learning for Engineers *Spring 2022*
- 18-793: Image and Video Processing *Fall 2021*

National Taiwan University
Teaching Assistant *Taiwan*

- CommE 5052: Deep Learning for Computer Vision *Spring 2019*
- CommE 5052: Deep Learning for Computer Vision *Spring 2018*
- EE 1004: Introduction to Programming *Fall 2017*

Selected Academic Honors

- **Qualcomm Innovation Fellowship,** *2022.* *USA*
- **Best Industrial Impact Paper Award,** *IEEE ICIP 2021.* *USA*
- **Best Master Thesis Award,** *TAAI 2019.* *Taipei, Taiwan*
- **Best Master Thesis Award,** *IPPR 2019.* *Taipei, Taiwan*

Professional activity

- **Conference Reviewer or Program Commitee:**
  IEEE Conference on Computer Vision and Pattern Recognition (CVPR) (2020, 2021, 2022, 2023)
  IEEE International Conference on Computer Vision (ICCV) (2021, 2023)
  International Conference on Learning Representation (ICLR) (2022, 2023)
  Neural Information Processing Systems (NeurIPS) (2022)
  International Conference on Machine Learning (ICML) (2023)
  Winter Conference on Applications of Computer Vision (WACV) (2021)
  European Conference on Computer Vision (ECCV) (2020, 2022)
  Asian Conference on Computer Vision (ACCV) (2020)
- **Journal Reviewer:**
  Transactions on Pattern Analysis and Machine Intelligence (TPAMI) (2023, 2021)