

# Yu-Jhe Li

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## Research Interests

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

## Education

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<b>Carnegie Mellon University</b> Ph.D. in Electrical and Computer Engineering (Advisor: Prof. Kris Kitani)	<i>Aug. 2020 - Sep. 2023</i> GPA: 4.0/4.0
<b>National Taiwan University</b> M.S. in Communication Engineering (Advisor: Prof. Yu-Chiang Frank Wang)	<i>Sep. 2017 - Jan. 2019</i> GPA: 4.18/4.3
<b>National Tsing Hua University</b> B.S. in Electrical Engineering and Computer Science	<i>Sep. 2013 - Jan. 2017</i> Major GPA: 4.09/4.3

## Work and Research Experience

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<b>Microsoft</b> <i>Research Scientist at Responsible and OpenAI Research (ROAR)</i> <ul style="list-style-type: none"><li>• Cross-modality learning in generative AI.</li></ul>	<i>Dec. 2023 - Present</i> <i>Redmond, WA, USA</i>
<b>The Robotics Institute, Carnegie Mellon University</b> <i>Ph.D. student and Research Associate, working with Kris Kitani</i> <ul style="list-style-type: none"><li>• 3D human pose estimation with multi-view depth cameras.</li><li>• Radar azimuth super-resolution for vehicle detection.</li><li>• Lidar-Radar fusion for vehicle detection.</li><li>• Domain-specific segmentation model for crack and rust detection.</li><li>• Multi-camera multi-person tracking for in-the-wild data.</li><li>• Clothing color invariant representation learning.</li></ul>	<i>Aug. 2019 - Sep. 2023</i> <i>Pittsburgh, PA, USA</i>
<b>Adobe</b> <i>Research Intern, working with Xinyang Zhang and Xin Lu</i> <ul style="list-style-type: none"><li>• Strengthen the generalization of the segmentation model to unseen domains.</li></ul>	<i>May. 2023 - Sep. 2023</i> <i>San Jose, CA, USA</i>
<b>Meta</b> <i>Research Intern, working with Tao Xu, Bichen Wu, Albert Pumarola</i> <ul style="list-style-type: none"><li>• GAN inversion of style-based neural radiance fields (NeRFs).</li><li>• Contrastive latent diffusion for latent-based neural radiance fields (NeRFs).</li></ul>	<i>May. 2022 - Aug. 2022</i> <i>Burlingame, CA, USA</i>
<b>Facebook (now Meta)</b> <i>Research Intern, working with Xiaoliang Dai, Chih-Yao Ma, Kan Chen</i> <ul style="list-style-type: none"><li>• Unsupervised domain adaptation in object detection.</li></ul>	<i>May. 2021 - Aug. 2021</i> <i>Menlo Park, CA, USA</i>
<b>Vision and Learning Lab, National Taiwan University</b> <i>Graduate Research Assistant, working with Prof. Yu-Chiang Frank Wang</i> <ul style="list-style-type: none"><li>• Unsupervised learning and domain adaptation in re-identification via unsupervised pose disentanglement.</li><li>• Learned resolution-invariant representations for cross-resolution tasks.</li></ul>	<i>Sep. 2017 - Jul. 2019</i> <i>Taipei, Taiwan</i>

## Selected Publications (full list here)

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### 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 Vajda. "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**<sup>\*</sup>, Yun-Chun Chen<sup>\*</sup>, 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<sup>\*</sup>, **Yu-Jhe Li**<sup>\*</sup>, 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

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### Carnegie Mellon University

Teaching Assistant

USA

- 18-661: Introduction to Machine Learning for Engineers
- 18-793: Image and Video Processing

Spring 2022

Fall 2021

### National Taiwan University

Teaching Assistant

Taiwan

- CommE 5052: Deep Learning for Computer Vision
- CommE 5052: Deep Learning for Computer Vision
- EE 1004: Introduction to Programming

Spring 2019

Spring 2018

Fall 2017

## Selected Academic Honors

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- **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

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- **Conference Reviewer or Program Committee:**
  - 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)