Yingwei Li

CONTACT INFORMATION

Department of Computer Science
Johns Hopkins University

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http://yingwei.li

RESEARCH INTERESTS

My research interests mainly lay in computer vision and deep learning, especially on autonomous driving [12,13,**17**,**18**], robust representation learning [3,4,7,8,**10**,12,14,15,16,**17**,**18**], multi-modality fusion [2,16,**17**,**18**], automated machine learning [5,**6**,9,11], medical machine intelligence [1,2,3]. Representative papers are **highlighted in bold**. I am always open to new topics.

EDUCATION

Johns Hopkins University (JHU) 2018 - 2022 (expected)
Ph.D. in Computer Science
Advisor: Alan Yuille

National Taiwan University (NTU) Spring 2017
Exchange Student in Computer Science and Information Engineering

Fudan University (Fudan) 2014 - 2018
B.S. in Computer Science, *Honor Class*

EXPERIENCE

Google 06/2021 - present
Research Intern
Work on accurate and robust multi-modality fusion for 3D object detection.
Mentors: Dr. Mingxing Tan, Dr. Denny Zhou, Mr. Jiquan Ngiam and Dr. Adams Wei Yu

Waymo 05/2020 - 11/2020
Software Engineering Intern
Work on accurate and robust multi-modality fusion for long-range object distance estimation.
Mentors: Prof. Hang Zhao, Dr. Ruichi Yu, Dr. Maya Kabkab and Dr. Tiffany Yu-Han Chen

ByteDance AI Lab 05/2019 - 11/2019
Research Intern
Work on neural architecture search and lightweight deep learning model design.
Mentors: Dr. Linjie Yang, Dr. Xiaojie Jin and Dr. Xiaochen Lian

ByteDance AI Lab 09/2018 - 05/2019
University Collaboration Program
Work on assessing and improving the black-box adversarial robustness of deep learning models.
Mentors: Dr. Xiaohui Shen and Prof. Cihang Xie

TuSimple 06/2016 - 09/2016
Research Intern
Work on multiple object tracking.
Mentor: Dr. Naiyan Wang

TEACHING

Johns Hopkins University (JHU) Spring 2021
Role: Teaching Assistant
Course: EN.601.783 *Vision as Bayesian Inference*
Instructor: Alan Yuille

Preprints

Representative papers are **highlighted in bold**; *: equally contribution.

[**18**] **Yingwei Li***, Adams Wei Yu*, Tianjian Meng, Ben Caine, Jiquan Ngiam, Daiyi Peng, Junyang Shen, Yifeng Lu, Denny Zhou, Quoc Le, Alan Yuille, Mingxing Tan. **Lidar-Camera Deep Fusion for Multi-Modal 3D Object Detection**. Under Review.

[**17**] **Yingwei Li**, Tiffany Chen, Maya Kabkab, Ruichi Yu, Longlong Jing, Yurong You, Hang Zhao. **R4D: Utilizing Reference Objects for Long-Range Distance Estimation**. Under Review.

[16] Junfei Xiao, Longlong Jing, Lin Zhang, Ju He, Qi She, Zongwei Zhou, Alan Yuille, **Yingwei Li**. Learning from Temporal Gradient for Semi-supervised Action Recognition. Under Review.

[15] Vipul Gupta, Zhuowan Li, Adam Kortylewski, Chenyu Zhang, **Yingwei Li**, Alan Yuille. SwapMix: Diagnosing and Regularizing the Over-reliance on Visual Context in Visual Question Answering. Under Review.

[14] Shunchang Liu, Jiakai Wang, Aishan Liu, **Yingwei Li**, Yijie Gao, Xianglong Liu, Dacheng Tao. Harnessing Perceptual Adversarial Patches for Crowd Counting. Under Review.

[13] Longlong Jing, Ruichi Yu, Jiyang Gao, Henrik Kretzschmar, Kang Li, Charles R. Qi, Hang Zhao, Alper Ayvaci, Xu Chen, Dillon Cower, **Yingwei Li**, Yurong You, Han Deng, Congcong Li, Dragomir Anguelov. Depth Matters Most: Improving Per-Object Depth Estimation for Monocular 3D Detection and Tracking. Under Review.

[12] Ziqi Zhang, Xinge Zhu, **Yingwei Li**, Xiangqun Chen, Yao Guo. Adversarial Attacks on Monocular Depth Estimation. In *CoRR, abs/2003.10315*.

Publications

[11] Huaijin Pi, Huiyu Wang, **Yingwei Li**, Zizhang Li, Alan Yuille. Searching for TrioNet: Combining Convolution with Local and Global Self-Attention. In Proceedings of *the British Machine Vision Conference* (**BMVC**), BMVA Press, 2021.

[**10**] **Yingwei Li**, Qihang Yu, Mingxing Tan, Jieru Mei, Peng Tang, Wei Shen, Alan Yuille, Cihang Xie. **Shape-Texture Debiased Neural Network Training**. In *International Conference on Learning Representations* (**ICLR**), 2021.

[9] Qihang Yu, **Yingwei Li**, Jieru Mei, Yuyin Zhou, Alan L. Yuille. CAKES: Channel-wise Automatic KErnel Shrinking for Efficient 3D Network. In Proceedings of *the Thirty-Fifth AAAI Conference on Artificial Intelligence* (**AAAI**). AAAI Press, 2021.

[8] Song Bai, **Yingwei Li**, Yuyin Zhou, Qizhu Li, Philip H.S. Torr. Adversarial Metric Attack for Person Re-identification. In *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**TPAMI**), IEEE, 2020.

[7] **Yingwei Li**, Song Bai, Cihang Xie, Zhenyu Liao, Xiaohui Shen, Alan Yuille. Regional Homogeneity: Towards Learning Transferable Universal Adversarial Perturbations Against Defenses. In Proceedings of *the European Conference on Computer Vision* (**ECCV**), Springer, 2020.

[**6**] **Yingwei Li**, Xiaojie Jin, Jieru Mei, Xiaochen Lian, Linjie Yang, Cihang Xie, Qihang Yu, Yuyin Zhou, Song Bai, Alan Yuille. **Neural Architecture Search for Lightweight Non-Local Networks**. In Proceedings of *the IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), IEEE, 2020.

[5] Jieru Mei, **Yingwei Li**, Xiaochen Lian, Xiaojie Jin, Linjie Yang, Alan Yuille, Jianchao Yang. AtomNAS: Fine-Grained End-to-End Neural Architecture Search. In *International Conference on Learning Representations* (**ICLR**), 2020.

[4] **Yingwei Li**, Song Bai, Yuyin Zhou, Cihang Xie, Zhishuai Zhang, Alan Yuille. Learning Transferable Adversarial Examples via Ghost Networks. In Proceedings of *The Thirty-Fourth AAAI Conference on Artificial Intelligence* (**AAAI**), AAAI Press, 2020.

[3] **Yingwei Li***, Zhuotun Zhu*, Yuyin Zhou, Yingda Xia, Wei Shen, Elliot K.Fishman, and Alan L. Yuille. Volumetric Medical Image Segmentation: A 3D Deep Coarse-to-fine Framework and Its Adversarial Examples. In *Deep Learning and Convolutional Neural Networks for Medical Image Computing*, Advances in Computer Vision and Pattern Recognition, Springer, ISBN 978-3-030-13968-1, 2019.

[2] Yuyin Zhou, **Yingwei Li**, Zhishuai Zhang, Yan Wang, Angtian Wang, Elliot K. Fishman, Alan Yuille, Seyoun Park. Hyper-Pairing Network for Multi-Phase Pancreatic Ductal Adenocarcinoma Segmentation. In Proceedings of *the International Conference on Medical Image Computing and Computer-Assisted Intervention* (**MICCAI**), Springer, 2019.

[1] Yuyin Zhou, David Dreizin, **Yingwei Li**, Zhishuai Zhang, Yan Wang, Alan Yuille. Multi-Scale Attentional Network for Multi-Focal Segmentation of Active Bleed after Pelvic Fractures. In Proceedings of *10th International Workshop on Machine Learning in Medical Imaging* (**MLMI**) Held in Conjunction with MICCAI, Springer, 2019.

Talks

Lidar-Camera Deep Fusion for Multi-Modal 3D Object Detection

- Google Brain | Waymo meeting — Dec, 2021
- Google Cloud Vision/Video Tech Talk — Jan, 2022

R4D: Utilizing Reference Objects for Long-Range Distance Estimation

- Google Brain | Waymo meeting — July, 2021

Shape-Texture Debiased Neural Network Training

- Qingyuan Seminars — Feb, 2021
- Visual Informatics Group @ University of Texas at Austin — Sep, 2021

Learning Transferable Adversarial Examples via Ghost Networks

- AdvML Workshop @ CVPR 2019 — June, 2019
- The Thirty-Fourth AAAI Conference on Artificial Intelligence — Feb, 2020

Neural Architecture Search for Lightweight Non-Local Networks

- Kwai Silicon Valley Lab — May, 2020

Selected Awards

ICLR Travel Award — 2020
First Prize Scholarship from Fudan University Education Development Foundation — 2017
SCSK Scholarship — 2016
Silver Medal, ACM-ICPC Shanghai Regional Contest — 2014
Bronze Medal, China National Olympiad in Informatics (NOI) — 2013
First Prize, National Olympiad in Informatics in Provinces (NOIP) — 2012 & 2013

Service

Co-organizer of

- Practical Deep Learning in the Wild — AAAI 2022
- Adversarial Robustness in the Real World — ICCV 2021
- Adversarial Learning for Multimedia — ACMMM 2021
- Adversarial Robustness in the Real World — ECCV 2020

Reviewer for IEEE TIP, IEEE TDSC, Neurocomputing, Pattern Recognition, AmlCV@CVPR2020, SRML@ICML2021, SecMl@ICLR2021, RseMl@AAAI2021 AAAI 2021, IJCAI 2021, CVPR 2021, ICCV 2021, NeurIPS 2021, AAAI 2022, ICLR 2022, CVPR 2022.

ADVISING	Junfei Xiao	Master student from Johns Hopkins University
	Weiyu Guo	Graduate student from University of Chinese Academy of Sciences
	Shunchange Liu	Undergraduate student from Beihang University

SKILLS Python, TensorFlow and PyTorch (for research projects); C/C++ (for ACM-ICPC contests).