Jingkang Wang

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Department of Computer Science
Machine Learning Group

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RESEARCH INTERESTS

- Automatic & Trustworthy Machine Learning
- Self-Driving - Training, Testing and Simulation
- 3D Computer Vision

EDUCATION

Ph.D. Student, **University of Toronto**   Sep 2019 – present

- Department of Computer Science
- Advisor: Prof. Raquel Urtasun

B.S., Information Security, **Shanghai Jiao Tong University, China**   Sep 2015 – Jun 2019

- GPA: 4.00/4.3 (91.8/100), **Rank: 1/97**
- Advisor: Prof. Cewu Lu and Prof. Gongshen Liu

RESEARCH EXPERIENCE

Researcher I, **Waabi Innovation Inc.**, Canada   Mar 2021 – present

- Manager: Prof. Raquel Urtasun

Research Scientist, **UberATG Toronto**, Canada   Sep 2019 – Feb 2021

- Manager: Prof. Raquel Urtasun
- Focus: Automating the Training & Testing for Self-Driving

Research Intern, **Ant Financial, Alibaba Group**, China   Jun 2019 – Aug 2019

- Host: Prof. Le Song
- Focus: Decision-based Black-box Attack

Research Intern, **University of Illinois at Urbana-Champaign**, China (remotely)   Oct 2018 – May 2019

- Host: Prof. Bo Li
- Focus: Trustworthy Machine Learning
- Work with Profs. Yang Liu (UCSC), Sijia Liu (MSU) and Ruoxi Jia (Virginia Tech)

Research Intern, **University of California, Berkeley**, China (remotely)   Jun 2018 – Sep 2018

- Host: Prof. Bo Li and Prof. Dawn Song
- Focus: Trustworthy Machine Learning

PUBLICATIONS

(*=equal contribution) See Google Scholar.

CONFERENCES

[1] **Jingkang Wang***, Tianyun Zhang*, Sijia Liu, Pin-Yu Chen, Jiacen Xu, Makan Fardad and Bo Li. Adversarial Attack Generation Empowered by Min-Max Optimization. *Advances in Neural Information Processing Systems (**NeurIPS**), 2021.*

[2] **Jingkang Wang***, Hongyi Guo*, Zhaowei Zhu and Yang Liu. Policy Learning Using Weak Supervision. *Advances in Neural Information Processing Systems (**NeurIPS**), 2021.*

[3] **Jingkang Wang**, Ava Pun, James Tu, Sivabalan Manivasagam, Abbas Sadat, Sergio Casas, Mengye Ren and Raquel Urtasun. AdvSim: Generating Safety-Critical Scenarios for Self-Driving Vehicles. *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.*

[4] James Tu*, Tsunhsuan Wang*, **Jingkang Wang**, Sivabalan Manivasagam, Mengye Ren and Raquel Urtasun. Adversarial Attacks on Multi-Agent Communication. *International Conference on Computer Vision (**ICCV**), 2021.*

[5] Sean Segal, Nishanth Kumar, Sergio Casas, Wenyuan Zeng, Mengye Ren, **Jingkang Wang** and Raquel Urtasun. Just Label What You Need: Fine-Grained Active Selection for Perception and Prediction through Partially Labeled Scenes. *Conference on Robot Learning (CoRL), 2021.*

[6] Nicholas Vadivelu, Mengye Ren, James Tu, **Jingkang Wang** and Raquel Urtasun. Learning to Communicate and Correct Pose Errors. *Conference on Robot Learning (CoRL), 2020.*

[7] **Jingkang Wang**, Yang Liu and Bo Li. Reinforcement Learning with Perturbed Rewards. *AAAI Conference on Artificial Intelligence (AAAI), 2020.* (**Spotlight**)

[8] Gerald Friedland, Ruoxi Jia, **Jingkang Wang**, Bo Li and Nathan Mundhenk. On the Impact of Perceptual Compression on Deep Learning. *International Conference on Multimedia Information Processing and Retrieval (MIPR), 2020.*

[9] **Jingkang Wang***, Jianing Zhou*, Jie Zhou and Gongshen Liu. Multiple Character Embeddings for Chinese Word Segmentation. *Annual Meeting of the Association for Computational Linguistics (ACL), 2019.*

[10] Yiping Chen*, **Jingkang Wang***, Jonathan Li, Cewu Lu, Zhipeng Luo, Han Xue and Cheng Wang. LiDAR-Video Driving Dataset: Learning Driving Policies Effectively. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018.*

WORKSHOPS

[1] **Jingkang Wang***, Mengye Ren**, Ilija Bogunovic, Yuwen Xiong and Raquel Urtasun. Cost-Efficient Online Hyperparameter Optimization. *International Conference on Machine Learning (ICML), RealML Workshop, 2020.*

[3] **Jingkang Wang***, Gaoyuan Zhang* and Sijia Liu. Is Robust Neurons' Activation Sufficient to Robustify CNNs against Adversarial Attacks? *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), AdvML Workshop, 2020.*

[4] Tianshi Cao*, **Jingkang Wang***, Annie Zhang and Sivabalan Manivasagam. BabyAI++: Towards Grounded-Language Learning beyond Memorization. *International Conference on Learning Representations (ICLR), BeTR-RL Workshop, 2020.*

SELECTED HONORS & AWARDS	■ National Scholarships in China (**1%**),	2016, 2017, 2018
	■ Level-A SJTU Outstanding Scholarships (**1%**)	2016, 2017, 2018
	■ Excellent Bachelor Thesis (Top %1) of SJTU	2019
	■ Outstanding Undergraduate in Shanghai	2019
	■ First Prize in National College Student Information Security Contest	2018
	■ Meritorious Winner Prize in The Mathematical Contest in Modeling (MCM)	2018
	■ Second Prize in The Chinese Mathematics Competition (CMC, Shanghai)	2017
	■ Second Prize in National College Students Information Security Contest	2017
	■ First Prize in Chinese Mathematical Olympiad (CMO, **10th in Province**)	2014

PROFESSIONAL SERVICE

I am/was a conference reviewer for

- International Conference on Computer Vision (ICCV)
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- Annual Meeting of the Association for Computational Linguistics (ACL)
- Conference on Empirical Methods in Natural Language Processing (EMNLP)
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)
- International Conference on Pervasive Artificial Intelligence (ICPAI)

I am/was a journal reviewer for

- Computer Vision and Image Understanding (CVIU)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Signal Processing (TSP)

TALKS & PRESENTATIONS	- Physics-based Differentiable Rendering. UofT Reading Group.	Mar 2021
	- Differentiable Monte Carlo Ray Tracing through Edge Sampling. CSC2547.	Feb 2021
	- Trust Region Policy Optimization (TRPO). CSC2621.	Feb 2020
	- Efficient Nonmyopic Active Search. CSC2547 Learning to Search.	Oct 2019
	- Towards Secure and Interpretable Learning in Deep Neural Networks. Uber ATG.	Jul 2019