

Weizi Li

CONTACT & INFO 🏠 Dunn Hall 321, University of Memphis, Memphis, TN 38152
✉ wli@memphis.edu / weizili.cs@gmail.com
☎ +1-617-803-1863
🌐 weizi-li.github.io
🔗 [scholar](#)

🔬 RESEARCH INTERESTS

Socio-technical Systems, Intelligent Transportation Systems, Robotics, Machine Learning (Reinforcement Learning), and Multi-agent Simulation

🎓 EDUCATION

University of North Carolina at Chapel Hill Chapel Hill, NC
Ph.D. in Computer Science Jul '19
Advisor: Ming C. Lin
Thesis Committee: [Ming C. Lin](#) (UNC), [Dinesh Manocha](#) (UNC), [Ron Alterovitz](#) (UNC), [Julien Pettré](#) (Inria, France), [David Wilkie](#) (Aurora Innovation)

George Mason University Fairfax, VA
M.S. in Computer Science Jan '13
Advisor: Jan M. Allbeck

Xiangtan University Xiangtan, China
B.Eng. in Computer Science and Technology Jun '08
Thesis Advisor: Jingye Zhou

👛 EXPERIENCE

University of Memphis Memphis, TN
Department of Computer Science Fall '20–present
Assistant Professor

Massachusetts Institute of Technology Cambridge, MA
Laboratory for Information and Decision Systems (LIDS) Fall '19–Fall '20
Institute for Data, Systems, and Society (IDSS)
Michael Hammer Postdoctoral Fellow

University of Maryland, College Park College Park, MD
Department of Computer Science Fall '18–Summer '19
Institute for Advanced Computer Studies (UMIACS)
Visiting Research Assistant

University of North Carolina at Chapel Hill Chapel Hill, NC
Department of Computer Science Spring '14–Summer '19
Research Assistant

Disney Research Los Angeles, CA
Disney Research Los Angeles Summer–Fall '15
Research Intern

Lenovo Research & Technology Human-Computer Interaction Innovation team <i>Research Intern</i>	Beijing, China Fall '13
National University of Singapore Keio-NUS CUTE Center <i>Research Intern</i>	Singapore Spring–Summer '13
George Mason University Department of Computer Science <i>Research Assistant</i>	Fairfax, VA Spring '10–Fall '12

🏆 HONORS AND AWARDS

National Science Foundation CISE Research Initiation Initiative (CRII) Award	'22
Nvidia Corporation Academic Hardware Grant	'22
Massachusetts Institute of Technology Michael Hammer Postdoctoral Fellowship	'19
George Mason University Volgenau School of Engineering Academic Fellowship	'10
Xiangtan University Academic Excellence Scholarship	'05–'07
China Society for Industrial and Applied Mathematics National First Prize in 15th China Undergraduate Mathematical Contest in Modeling	'06

📖 PUBLICATIONS (advisees are underlined)

JOURNAL
ARTICLES

- J.13 Dawei Wang, **Weizi Li**, Lei Zhu, and Jia Pan, “Learning to Control and Coordinate Hybrid Traffic Through Robot Vehicles at Complex and Unsignalized Intersections,” , Under Review.
- J.12 Lei Lin, Feng Shi, and **Weizi Li**, “Assessing inequality, irregularity, and severity regarding road traffic safety during COVID-19,” *Scientific Reports*, 2021.
- J.11 Lei Lin, **Weizi Li**, Huikun Bi, and Lingqiao Qin, “Vehicle Trajectory Prediction Using LSTMs with Spatial-Temporal Attention Mechanisms,” *IEEE Intelligent Transportation Systems Magazine*, 2021.
- J.10 Qianwen Chao, Huikun Bi, **Weizi Li**, Tianlu Mao, Zhaoqi Wang, Ming C. Lin, and Zhigang Deng, “A Survey on Visual Traffic Simulation: Models, Evaluations, and Applications in Autonomous Driving,” *Computer Graphics Forum*, 39(1):287–308, 2020.
- J.9 Lei Lin, **Weizi Li**, and Srinivas Peeta, “Efficient Data Collection and Accurate Travel Time Estimation in a Connected Vehicle Environment via Real-Time Compressive Sensing,” *Journal of Big Data Analytics in Transportation*, 1(2):95–107, 2019.

- J.8 Zeyu Xiong, Qiangqiang Shen, Yueshan Xiong, Yijie Wang, and **Weizi Li**, “New Generation Model of Word Vector Representation Based on CBOW or Skip-Gram,” *Computers, Materials and Continua*, 60(1):259–273, 2019.
- J.7 Yang Yu, Zeyu Xiong, Yueshan Xiong, and **Weizi Li**, “Improved Logistic Regression Algorithm Based on Kernel Density Estimation for Multi-Classification with Non-Equilibrium Samples,” *Computers, Materials and Continua*, 61(1):103–118, 2019.
- J.6 **Weizi Li**, Meilei Jiang, Yaoyu Chen, and Ming C. Lin, “Estimating Urban Traffic States Using Iterative Refinement and Wardrop Equilibria,” *IET Intelligent Transport Systems*, 12(8):875–883, 2018.
- J.5 **Weizi Li**, David Wolinski, and Ming C. Lin, “City-Scale Traffic Animation Using Statistical Learning and Metamodel-based Optimization,” *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)*, 36(6):200:1–200:12, 2017.
- J.4 **Weizi Li**, Dong Nie, David Wilkie, and Ming C. Lin, “Citywide Estimation of Traffic Dynamics Via Sparse GPS Traces,” *IEEE Intelligent Transportation Systems Magazine*, 9(3):100–113, 2017.
- J.3 David Wilkie, Jason Sewall, **Weizi Li**, and Ming C. Lin, “Virtualized Traffic at Metropolitan Scales,” *Frontiers in Robotics and AI*, 2(11):1–10, 2015.
- J.2 **Weizi Li**, David Wolinski, Julien Pettr , and Ming C. Lin, “Biologically-Inspired Visual Simulation of Insect Swarms,” *Computer Graphics Forum (Proc. Eurographics)*, 34(2):425–434, 2015.
- J.1 **Weizi Li**, Zichao Di, and Jan M. Allbeck, “Crowd Distribution and Location Preference,” *Computer Animation and Virtual Worlds (Proc. CASA)*, 23(3–4):343–351, 2012.
- C.15 Michael Villarreal, Bibek Poudel, Ryan Wickman, Yu Shen, and **Weizi Li**, “AutoJoin: Efficient Adversarial Training for Robust Maneuvering via Denoising Autoencoder and Joint Learning,” in *Proc. Eleventh International Conference on Learning Representations (ICLR)*, In submission.
- C.14 Yu Shen, **Weizi Li**, and Ming C. Lin, “Inverse Reinforcement Learning with Hybrid-weight Trust-region Optimization and Curriculum Learning for Autonomous Maneuvering,” in *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022.
- C.13 Bibek Poudel, Thomas Watson, and **Weizi Li**, “Learning to Control DC Motor for Micromobility in Real Time with Reinforcement Learning,” in *Proc. IEEE International Conference on Intelligent Transportation Systems (ITSC)*, 2022.
- C.12 Lei Lin, **Weizi Li**, and Lei Zhu, “Data-driven Graph Filter based Graph Convolutional Neural Network Approach for Network-Level Multi-Step Traffic Prediction,” in *Proc. Transportation Research Board 101th Annual Meeting (TRB)*, 2022.
- C.11 Yu Shen, Laura Zheng, Manli Shu, **Weizi Li**, Tom Goldstein, and Ming C. Lin, “Gradient-Free Adversarial Training Against Image Corruption for Learning-based Steering,” in *Proc. 35th Conference on Neural Information Processing Systems (NeurIPS)*, 2021.
- C.10 Bibek Poudel and **Weizi Li**, “Black-box Adversarial Attacks on Network-wide Multi-step Traffic State Prediction Models,” in *Proc. IEEE International Conference on Intelligent Transportation Systems (ITSC)*, 2021.


BOOK
CHAPTERS

- C.9 Songhe Wang, Kangda Wei, Lei Lin, and **Weizi Li**, “Spatial-Temporal Analysis of COVID-19’s Impact On Human Mobility: The Case of The United States,” in *Proc. The 20th and 21st Joint COTA International Conference of Transportation Professionals (CICTP)*, 2021.
- C.8 **Weizi Li**, David Wolinski, and Ming C. Lin, “ADAPS: Autonomous Driving Via Principled Simulations,” in *Proc. IEEE International Conference on Robotics and Automation (ICRA)*, 2019.
- C.7 Lei Lin, **Weizi Li**, and Srinivas Peeta, “Predicting Station-level Bike-sharing Demands Using Graph Convolutional Neural Network,” in *Proc. Transportation Research Board 98th Annual Meeting (TRB)*, 2019.
- C.6 Lei Lin, **Weizi Li**, and Srinivas Peeta, “A Compressive Sensing Approach for Connected Vehicle Data Capture and its Impact on Travel Time Estimation,” in *Proc. Transportation Research Board 98th Annual Meeting (TRB)*, 2019.
- C.5 **Weizi Li**, Meilei Jiang, Yaoyu Chen, and Ming C. Lin, “Estimating Traffic Conditions At Metropolitan Scale Using Traffic Flow Theory,” in *Proc. Transportation Research Board 97th Annual Meeting (TRB)*, 2018.
- C.4 **Weizi Li**, Tim Balint, and Jan M. Allbeck, “Using A Parameterized Memory Model to Modulate NPC AI,” in *Proc. 13th International Conference on Intelligent Virtual Agents (IVA)*, 2013.
- C.3 **Weizi Li** and Jan M. Allbeck, “Virtual Humans: Evolving with Common Sense,” in *Proc. Fifth International Conference on Motion in Games (MIG)*, 2012.
- C.2 **Weizi Li** and Jan M. Allbeck, “The Virtual Apprentice,” in *Proc. 12th International Conference on Intelligent Virtual Agents (IVA)*, 2012.
- C.1 **Weizi Li** and Jan M. Allbeck, “Populations with Purpose,” in *Proc. Fourth International Conference on Motion in Games (MIG)*, 2011.
- B.2 Funda Durupinar, Nuria Pelechano, Jan M. Allbeck, **Weizi Li**, and Norman I. Badler, “Individual Differences,” *Virtual Crowds: Steps Toward Behavioral Realism*, Chapter 18, Morgan & Claypool Publishers, 2015.
- B.1 **Weizi Li**, John T. Balint, and Jan M. Allbeck, “Parameterized Memory Models,” *Virtual Crowds: Steps Toward Behavioral Realism*, Chapter 17, Morgan & Claypool Publishers, 2015.

● PROPOSALS / GRANTS

PENDING

- National Institutes of Health** Sep '23–Aug '25
 “BGKMR: a machine learning toolbox for substance use and SUD detection”
 PI: Xichen Mou, Co-PI: Weizi Li (multiple Co-PIs), Amount: \$356,348
- Sony Research** Aug '23–Jul '24
 “Towards City-scale Control and Coordination of Fused Flow of Robot and Human-driven Vehicles”
 Sole PI: Weizi Li, Amount: \$100,000
- Tennessee Valley Authority** Jul '23–Jun '24
 “Computing Proposal for Memphis Electrical Network Behavior Modeling”
 PI: Xiaofei Zhang, Co-PI: Weizi Li, Amount: \$107,902

	Air Force Office of Scientific Research (AFOSR)	Jul '23–Aug '25
	“Objective-Driven Real-Time Dynamic Graph Reduction via Reinforcement Learning”	
	PI: Xiaofei Zhang, Co-PI: <u>Weizi Li</u> , Amount: \$238,000	
AWARDED	Tennessee Department of Transportation	Aug '22–Jul '24
	“University Technical Assistance Program (UTAP)”	
	PI: Shahram Pezeshk, Co-PI: <u>Weizi Li</u> (multiple Co-PIs), Amount: \$1,000,000	
	National Science Foundation	Jul '22–Jun '24
	“CRII: III: Towards Effective and Efficient City-scale Traffic Reconstruction”	
	Sole PI: <u>Weizi Li</u> , Amount: \$174,789	
	FedEx Institute of Technology	Jan–Dec '21
	“Trailer Load Optimization”	
	PI: Eddie Jacobs, Co-PI: <u>Weizi Li</u> , Amount: \$10,000	
	 STUDENTS	
PH.D.	Muyang Fan	Fall '22–present
	Supriya Sarker	Fall '22–present
	Michael Villarreal	Fall '21–present
	Bibek Poudel	Fall '20–present
PH.D. THESIS COMMITTEE	Huan Hoang Ngo (Advisor: Sabya Mishra)	Fall '22
	Eric Hicks (Advisor: Vinhthuy Phan)	Fall '22
	Jamal Hayat Mosakheil (Advisor: Kan Yang)	Spring '22
	Sayma Akther (Advisor: Santosh Kumar)	Fall '21
MASTERS	Krishna Chaitanya Bala Puvulla	Fall '22–present
	Md. Kaiser Ahmed	Fall '22–present
	Lahari Karadla	Spring '21
MASTERS THESIS/PROJECT COMMITTEE	Lakshmi Saranya Peddi (Advisor: Vinhthuy Phan)	Fall '22
	Lokesh Chandra Das (Advisor: Myounggyu Won)	Spring '22
	Thi Kim Thoa Phan (Advisor: Xiaofei Zhang)	Spring '22
	Ryan Wickman (Advisor: Xiaofei Zhang)	Spring '21
	Mazharul Hossain (Advisor: Lan Wang)	Spring '21
	Kranthi Battu (Advisor: Xiaofei Zhang)	Fall '20
UNDERGRADUATE	Shahzeb Kazmi	Summer '22–present
	Songhe Wang (UNC)	Spring–Fall '20
	Kangda Wei (UNC)	Fall '20
	Laura Zheng (UMD)	Summer '18–Summer '19
HIGH SCHOOL	Abhinay Bhatla (Collierville)	Summer '22–present
	Shivam Aarya (White Station)	Summer '21–present

TEACHING

UNIVERSITY OF MEMPHIS	COMP/EECE 4741/6741 Intro to Neural Networks <i>Instructor</i> Enrollment: 13, Course rating: 4.78/5 (college mean: 4.42/5)	Fall '22
	COMP/EECE 4720/6720 Intro to Artificial Intelligence <i>Instructor</i> Enrollment: 48, Course rating: 4.5/5 (college mean: 4.25/5)	Spring '22
	COMP/EECE 4741/6741 Intro to Neurocomputing <i>Instructor</i> Enrollment: 10, Course rating: 5/5 (college mean: 4.39/5)	Fall '21
	COMP/EECE 7991/8991 Reinforcement Learning <i>Instructor</i> Enrollment: 11, Course rating: 4.8/5 (college mean: 4.63/5)	Spring '21
	COMP/EECE 4741/6741 Intro to Neurocomputing <i>Instructor</i> Enrollment: 11, Course rating: 4.8/5 (college mean: 4.61/5)	Fall '20
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	6.419 Statistics, Computation & Applications <i>Course Developer</i>	Summer '20
	6.86x Machine Learning with Python—From Linear Models to Deep Learning <i>Recitation Instructor and Course Developer</i> Enrollment: 24, Course rating: 4.5/5.0	Spring '20

REVIEWER / PROGRAM COMMITTEE

JOURNAL	The Visual Computer	'23
	Journal of Intelligent Transportation Systems	'22
	IEEE Transactions on Vehicular Technology	'22
	IEEE Transactions on Intelligent Transportation Systems	'21–'22
	IEEE Robotics and Automation Letters	'20, '22
	IEEE Intelligent Transportation Systems Magazine	'18–'20, '22
	Physica A: Statistical Mechanics and its Applications	'22
	IEEE Transactions on Visualization and Computer Graphics	'21
	The Visual Computer	'21
	Journal of The Royal Society Interface	'21
	Simulation Modelling Practice and Theory	'20
	Computer Animation and Virtual Worlds	'20
	PLoS ONE	'18–'20
	IEEE Transactions on Robotics	'19
	IEEE Transactions on Visualization and Computer Graphics	'18
CONFERENCE	IEEE International Conference on Robotics and Automation	'23
	International Conference on Machine Learning	'22
	IEEE International Conference on Robotics and Automation	'22
	IEEE/RSJ International Conference on Intelligent Robots and Systems	'21–'22
	International Conference on Computer Animation and Social Agents	'16, '22
	British Machine Vision Conference	'20
	Learning for Dynamics & Control	'20

COTA International Conference of Transportation Professionals	'19-'20
IEEE Intelligent Transportation Systems Conference	'19
Transportation Research Board Annual Meeting	'19
SIGGRAPH Asia	'14-'19
IEEE Virtual Reality	'18
Robotics: Science and Systems	'16, '18
SIGGRAPH	'14, '17
ACM Symposium on Virtual Reality Software and Technology	'17
International Workshop on the Algorithmic Foundations of Robotics	'16
ACM SIGGRAPH/Eurographics Symposium on Computer Animation	'15
International Conference on Autonomous Agents and Multiagent Systems	'13
ACM International Conference on Intelligent Virtual Agents	'12
ACM SIGGRAPH Conference on Motion, Interaction, and Games	'12