Ruohan Zhang

Postdoctoral Researcher
Stanford Vision and Learning (SVL) Lab
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Education

2021   PhD, Computer Science, University of Texas at Austin (GPA: 3.92)
Advisor: Dana H. Ballard
Dissertation: A modular attention hypothesis for modeling visuomotor behaviors

2014   MASTER OF SCIENCE, Computer Science, University of Texas at Austin

2012   BACHELOR OF ARTS, Psychology, Rhodes College, *Cum laude* (GPA: 3.83)
Minors in Computer Science and Economics

Publications

2022   Selective Visual Attention During Public Speaking in an Immersive Context.
Mikael Rubin, Sihang Guo, Karl Muller, Ruohan Zhang, Michael J. Telch, Mary M. Hayhoe. *Attention, Perception, and Psychophysics, To appear.*

2021   Machine versus Human Attention in Deep Reinforcement Learning Tasks.
Sihang Guo, Ruohan Zhang, Bo Liu, Yifeng Zhu, Dana Ballard, Mary Hayhoe, Peter Stone. *Advances in Neural Information Processing Systems (NeurIPS).*

2021   Widening the Pipeline in Human-Guided Reinforcement Learning with Explanation and Context-Aware Data Augmentation.
Lin Guan, Mudit Verma, Sihang Guo, Ruohan Zhang, Subbarao Kambhampati. *Advances in Neural Information Processing Systems (NeurIPS).*

2021   Recent Advances in Leveraging Human Guidance for Sequential Decision-making Tasks.
Ruohan Zhang*, Faraz Torabi*, Garrett Warnell, Peter Stone (*equally contributed). *Autonomous Agents and Multi-Agent Systems (JAAMAS).*

2021   The Hierarchical Evolution in Human Vision Modeling.
Dana H Ballard, Ruohan Zhang. *Topics in Cognitive Science.*

2021   Efficiently Guiding Imitation Learning Algorithms with Human Gaze.
Akanksha Saran, Ruohan Zhang, Elaine Schaertl Short, Scott Niekum.   *International Conference on Autonomous Agents and Multiagent Systems (AAMAS).*

2020   Human Gaze Assisted Artificial Intelligence: A Review.
Ruohan Zhang, Akanksha Saran, Bo Liu, Yifeng Zhu, Sihang Guo, Scott Niekum, Dana H. Ballard, Mary M. Hayhoe. *International Joint Conference on Artificial Intelligence (IJCAI).*

2020   Parallel Neural Processing with Gamma Frequency Latencies.
Ruohan Zhang, Dana H Ballard. *Neural Computation.*

2020   Atari-HEAD: Atari Human Eye-Tracking and Demonstration Dataset.
        Ruohan Zhang, Calen Walshe, Zhuode Liu, Lin Guan, Karl S. Muller, Jake A. Whritner, Luxin Zhang,
        Mary M Hayhoe, Dana H. Ballard. *Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI).*

2019   Leveraging Human Guidance for Deep Reinforcement Learning Tasks.
        Ruohan Zhang, Faraz Torabi, Lin Guan, Dana H. Ballard, Peter Stone. *International Joint Conference on Artificial Intelligence (IJCAI) Survey Track.*

2018   Modeling Sensory-Motor Decisions in Natural Behavior.
        Ruohan Zhang, Shun Zhang, Matthew H. Tong, Yuchen Cui, Constantin A. Rothkopf, Dana H. Ballard,
        Mary M. Hayhoe. *PLoS Computational Biology.*

2018   AGIL: Learning Attention from Human for Visuomotor Tasks.
        Ruohan Zhang, Zhuode Liu, Luxin Zhang, Jake A. Whritner, Karl S. Muller, Mary M. Hayhoe, Dana
        H. Ballard. *European Conference on Computer Vision (ECCV).*

2018   Model Checking For Safe Navigation Among Humans.
        Sebastian Junges, Nils Jansen, Joost-Pieter Katoen, Ufuk Topcu, Ruohan Zhang, Mary Hayhoe. *International Conference on Quantitative Evaluation of SysTem (QEST).*

2017   Attention Guided Deep Imitation Learning.
        Ruohan Zhang*, Zhuode Liu*, Mary M. Hayhoe, Dana H. Ballard (*equally contributed). *Cognitive Computational Neuroscience (CCN).*

2017   Fast and Precise Black and White Ball Detection for RoboCup Soccer.
        Jacob Menashe, Josh Kelle, Katie Genter, Josiah Hanna, Elad Liebman, Sanmit Narvekar, Ruohan
        Zhang, Peter Stone. *RoboCup Symposium.*

2017   Greedy Direction Method of Multiplier for MAP Inference of Large Output Domain.
        Xiangru Huang, Ian E.H. Yen, Ruohan Zhang, Qixing Huang, Pradeep Ravikumar, Inderjit S. Dhillon.
        Artificial Intelligence and Statistics (AISTATS).

2016   Dual Decomposed Learning with Factorwise Oracle for Structural SVM of Large Output Domain.
        Ian E.H. Yen, Xiangru Huang, Kai Zhong, Ruohan Zhang, Pradeep Ravikumar, Inderjit S. Dhillon.
        Advances in Neural Information Processing Systems (NIPS).

2016   UT Austin Villa: Project-Driven Research in AI and Robotics.
        Katie Genter, Patrick MacAlpine, Jacob Menashe, Josiah Hanna, Elad Liebman, Sanmit Narvekar, Ruohan Zhang, Peter Stone. *IEEE Intelligent Systems 31(2).*

2016   Maximum Sustainable Yield Problem for Robot Foraging and Construction System.
        Ruohan Zhang, Zhao Song. *International Joint Conference on Artificial Intelligence (IJCAI).*

2016   Decision-Making Policies for Heterogeneous Autonomous Multi-Agent Systems with Safety Constraints.
        Ruohan Zhang, Yue Yu, Mahmoud El Chamie, Behçet Açikmese, Dana H. Ballard. *International Joint Conference on Artificial Intelligence (IJCAI).*

Grants and Awards

2019   University Continuing Fellowship, University of Texas at Austin ($44k)

2019	AAAI/SIGAI Doctoral Consortium Scholarship
2018	General International Student and Scholar Services Financial Aid Award ($1k)
2017-2018	Google AR/VR Research Award ($70k)
2014-17	College Continuing Fellowship, University of Texas at Austin Department of Computer Science ($30k)
2011	PSI CHI International Honor Society in Psychology
2010	Wolfram Certificate of Proficiency Mathematica Advanced Foundations Level
2010	Rhodes College Honor Roll Fall 2010 (semester GPA of 3.85 or better)
2010	Rhodes College Honor Roll Spring 2010
2009	Rhodes College Honor Roll Fall 2009
2009	Rhodes College Dean's List Spring 2009 (semester GPA of 3.70 or better)
2008-12	Rhodes College Grants ($80k+)
2005	Third Prize 2005 National Olympiad in Informatics, China
2004	Second Prize 2004 National Olympiad in Informatics, China

Academic Services

Journal review, *Frontiers in Artificial Intelligence*
Journal review, *Journal of Vision*
Book review, *Chapman & Hall/CRC Press*

Teaching

2019	COMPUTATIONAL BRAIN, Teaching Assistant, University of Texas at Austin
2015	MACHINE LEARNING, Teaching Assistant, University of Texas at Austin
2014	DISCRETE MATHEMATICS (HONOR), Teaching Assistant, University of Texas at Austin
2013	DISCRETE MATHEMATICS, Teaching Assistant, University of Texas at Austin
2013	LOGIC, SETS, AND FUNCTIONS, Teaching Assistant, University of Texas at Austin
2012	QUALITATIVE METHODS, Teaching Assistant, Rhodes College

Mentoring

Dawei Liang (now The University of Texas at Austin)
Lin Guan (now Arizona State University)
Yuezhang Liu (now The Hong Kong University of Science and Technology)
Luxin Zhang (now Carnegie Mellon University)
Zhuode Liu (now Google)

Community Services

2017-20	Cohort mentor for new students, University of Texas at Austin Department of Computer Science
2010-12	Dog trainer, Memphis Humane Society

2012	Service Our Student (SOS) mentor, Rhodes College
2009-11	International student peer advisor, Rhodes College
2008-12	Volunteer, Rhodes College A.S.I.A. Club (All Students Interested in Asia)