

Ruohan Zhang

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Education

- Current PHD, Computer Science, University of Texas at Austin (GPA: 3.92)
- 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

- 2020 Dana H Ballard, **Ruohan Zhang**. The Hierarchical Evolution in Human Vision Modeling. *To appear in Trends in Cognitive Sciences*.
- 2020 **Ruohan Zhang**, Calen Walshe, Zhuode Liu, Lin Guan, Karl S. Muller, Jake A. Whritner, Luxin Zhang, Mary M Hayhoe, Dana H Ballard. Atari-HEAD: Atari Human Eye-Tracking and Demonstration Dataset. *To appear in Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI)*.
- 2019 **Ruohan Zhang**, Faraz Torabi, Lin Guan, Dana H. Ballard, Peter Stone. Leveraging Human Guidance for Deep Reinforcement Learning Tasks. *International Joint Conference on Artificial Intelligence (IJCAI) Survey Track*.
- 2018 **Ruohan Zhang**, Shun Zhang, Matthew H. Tong, Yuchen Cui, Constatin A. Rothkopf, Dana H. Ballard, Mary M. Hayhoe. Modeling Sensory-Motor Decisions in Natural Behavior. *PLoS Computational Biology*.
- 2018 **Ruohan Zhang**, Zhuode Liu, Luxin Zhang, Jake A. Whritner, Karl S. Muller, Mary M. Hayhoe, Dana H. Ballard. AGIL: Learning Attention from Human for Visuomotor Tasks. *European Conference on Computer Vision (ECCV)*.
- 2018 Sebastian Junges, Nils Jansen, Joost-Pieter Katoen, Ufuk Topcu, **Ruohan Zhang**, Mary Hayhoe. Model Checking For Safe Navigation Among Humans. *International Conference on Quantitative Evaluation of SysTem (QEST)*.
- 2017 **Ruohan Zhang***, Zhuode Liu*, Mary M. Hayhoe, Dana H. Ballard (*equally contributed). Attention Guided Deep Imitation Learning. *Cognitive Computational Neuroscience (CCN)*.
- 2017 Jacob Menashe, Josh Kelle, Katie Genter, Josiah Hanna, Elad Liebman, Sanmit Narvekar, **Ruohan Zhang**, Peter Stone. Fast and Precise Black and White Ball Detection for RoboCup Soccer. *RoboCup Symposium*.

- 2017 Xiangru Huang, Ian E.H. Yen, **Ruohan Zhang**, Qixing Huang, Pradeep Ravikumar, Inderjit S. Dhillon. Greedy Direction Method of Multiplier for MAP Inference of Large Output Domain. *Artificial Intelligence and Statistics (AISTATS)*.
- 2016 Ian E.H. Yen, Xiangru Huang, Kai Zhong, **Ruohan Zhang**, Pradeep Ravikumar, Inderjit S. Dhillon. Dual Decomposed Learning with Factorwise Oracle for Structural SVM of Large Output Domain. *Advances in Neural Information Processing Systems (NIPS)*.
- 2016 Katie Genter, Patrick MacAlpine, Jacob Menashe, Josiah Hanna, Elad Liebman, Sanmit Narvekar, **Ruohan Zhang**, Peter Stone. UT Austin Villa: Project-Driven Research in AI and Robotics. *IEEE Intelligent Systems* 31(2).
- 2016 **Ruohan Zhang**, Yue Yu, Mahmoud El Chamie, Behçet Açıkmeşe, Dana H. Ballard. Decision-Making Policies for Heterogeneous Autonomous Multi-Agent Systems with Safety Constraints. *International Joint Conference on Artificial Intelligence (IJCAI)*.
- 2016 **Ruohan Zhang**, Zhao Song. Maximum Sustainable Yield Problem for Robot Foraging and Construction System. *International Joint Conference on Artificial Intelligence (IJCAI)*.

Preprint and Workshop Papers

- Preprint **Ruohan Zhang**, Faraz Torabi, Garrett Warnell, Peter Stone. Recent Advances in Leveraging Human Guidance for Sequential Decision-Making Tasks.
- Preprint **Ruohan Zhang**, Akanksha Saran, Bo Liu, Yifeng Zhu, Sihang Guo, Scott Niekum, Dana H. Ballard, Mary M. Hayhoe. Human Gaze Assisted Artificial Intelligence: A Review.
- Preprint Dana H. Ballard, **Ruohan Zhang**. Cortical Spike Multiplexing Using Gamma Frequency Latencies.
- Preprint Liu Yuezhang, **Ruohan Zhang**, Dana H Ballard. An Initial Attempt of Combining Visual Selective Attention with Deep Reinforcement Learning.
- Preprint Akanksha Saran, **Ruohan Zhang**, Elaine Schaertl Short, Scott Niekum. Efficiently Guiding Imitation Learning Algorithms with Human Gaze.
- 2020 Sihang Guo, Bharath Masetty, **Ruohan Zhang**, Dana Ballard, Mary Hayhoe. Modeling human multitasking behavior in video games through modular reinforcement learning. *To appear in Journal of Vision Abstract*.
- 2019 Dawei Liang, **Ruohan Zhang**, Jonathan S. Matthis, Karl S. Muller, Edison Thomaz, Dana H. Ballard, Mary M. Hayhoe. Modeling Gaze and Foothold Selection in Outdoor Walking. *Journal of Vision Abstract*.
- 2019 **Ruohan Zhang**. Attention Guided Imitation Learning and Reinforcement Learning. *Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI) Doctoral Consortium*.
- 2018 Luxin Zhang, **Ruohan Zhang**, Zhuode Liu, Mary M. Hayhoe, Dana H. Ballard. Learning Attention Model From Human for Visuomotor Tasks. *Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence (AAAI) Student Abstract*.
- 2017 Xiaoyu Zeng, **Ruohan Zhang**. Participatory Art Museum: Collecting and Modeling Crowd Opinions. *Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI) Student Abstract*.

- 2017 Katie Genter, Josiah Hanna, Josh Kelle, Elad Liebman, Jacob Menashe, Sanmit Narvekar, **Ruohan Zhang**, Peter Stone. UT Austin Villa 2017 Team Description Paper for the Standard Platform League. *RoboCup Symposium*.
- 2016 Katie Genter, Josiah Hanna, Josh Kelle, Elad Liebman, Jacob Menashe, Sanmit Narvekar, Rishi Shah, **Ruohan Zhang**, Peter Stone. UT Austin Villa 2016 Team Description Paper for the Standard Platform League. *RoboCup Symposium*.
- 2015 **Ruohan Zhang**, Zhao Song, Dana H. Ballard. Global Policy Construction in Modular Reinforcement Learning. *Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI) Student Abstract*.
- 2015 Katie Genter, Josiah Hanna, Elad Liebman, Jacob Menashe, Sanmit Narvekar, Jivko Sinapov, **Ruohan Zhang**, Peter Stone. UT Austin Villa 2015 Team Description Paper for the Standard Platform League. *RoboCup Symposium*.

Talks

- 2020 Atari-HEAD: Atari Human Eye-Tracking and Demonstration Dataset. *AAAI Reinforcement Learning in Games Workshop*.
- 2018 Modeling Complex Perception-Action Choices. *Vision Science Society Annual Meeting*.
- 2017 Modeling Multi-Objective Behavior through Modular Inverse Reinforcement Learning with Discount Factors. *Vision Science Society Annual Meeting*.

Grants and Awards

- 2019 University Continuing Fellowship, University of Texas at Austin (\$44k)
- 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 article reviewer, *Journal of Vision*
- Book reviewer, *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)
- Yuezhong Liu (now The Hong Kong University of Science and Technology)
- Luxin Zhang (now Carnegie Mellon University)
- Zhuode Liu (now Google)

Community Services

- Cohort mentor for new students, University of Texas at Austin Department of Computer Science
- 2010-12 Volunteer and 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)