

YILUN ZHOU

CONTACT

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EDUCATION

Massachusetts Institute of Technology (MIT) *June 2019 - December 2022 (Expected)*
Doctorate of Philosophy (Ph.D.) GPA: 5.0 / 5.0
Department of Electrical Engineering and Computer Science (EECS)
Advisor: Julie Shah

Massachusetts Institute of Technology (MIT) *Sept 2017 - June 2019*
Master of Science (M.S.) GPA: 5.0 / 5.0
Department of Electrical Engineering and Computer Science (EECS)
Advisor: Julie Shah

Duke University *August 2013 - December 2016*
Bachelor of Science in Engineering (B.S.E.) GPA: 3.98 / 4.0
Department of Computer Science
Department of Electrical and Computer Engineering
Advisor: George Konidakis and Kris Hauser

RESEARCH

I work broadly on trustworthy and responsible machine learning. Specifically, I seek answers to questions such as: How to ensure that a black-box model is working correctly? How to develop a holistic understanding of both the intended and, more importantly, unintended model behaviors? What are the limits of human understanding into such complex reasoning processes? To this end, I develop models, algorithms and evaluations in interpretable machine learning for diverse domains including computer vision (CV), natural language processing (NLP) and robotics. In addition, I also explore the interplay between interpretability and other areas of responsible ML, such as fairness and robustness.

EXPERIENCE

Microsoft Research, Research Intern May 2022 - August 2022

- Research project on interpretable machine learning.

NVIDIA, Research Intern May 2021 - Sept 2021

- Research project on high-level planning for embodied interaction tasks.

Facebook AI, Research Intern May 2020 - Sept 2020

- Research project on the potential of active learning to solve low-resource NLP tasks.
- Paper published in AISTATS 2021.

TALKS

- **Brown University**. Correctness and Understandability of Model Interpretability Methods. June 2022.
- **University of Michigan** (Guest Lecture for EECS 692: Advanced AI). Methods and Evaluations for *Post Hoc* Model-Agnostic Local Explanations. March 2022.
- **Meta AI**. The Missing User Manual for Model Interpretability Methods: Evaluation, Comprehension and Integration. March 2022.
- **Future of Privacy Forum**. Model Explanations: Hopes, Setbacks and Paths Forward. February 2022.

SERVICE

Conference reviewer: ICML, NeurIPS, ICLR, AISTATS, AAAI, IJCAI, ACL, NAACL, EMNLP, CoRL, IROS

Journal reviewer: T-ASE, T-Cyb, IJHCI

Student volunteer: AISTATS 2021

Outstanding reviewer recognition: ICML 2022

PUBLICATIONS

Reverse chronological order. *Equal contribution. †Undergraduate advisee.

J: journal. C: conference. W: workshop. P: pre-print. Main research theme.

P2 **Yilun Zhou** and Julie Shah. The Solvability of Interpretability Evaluation Metrics. *arXiv:2205.08696*.

C9 **Yilun Zhou**, Marco Tulio Ribeiro, and Julie Shah. EXSUM: From Local Explanations to Model Understanding. *Annual Conference of the North American Chapter of the Association for Computational Linguistics – Human Language Technology (NAACL-HLT)*, July 2022.

W4 Yiming Zheng[†], Serena Booth, Julie Shah, and **Yilun Zhou**. The Irrationality of Neural Rationale Models. *NAACL Workshop on Trustworthy Natural Language Processing (TrustNLP)*, July 2022.

C8 Ganesh Ghalme*, Vineet Nair*, Vishakha Patil*, and **Yilun Zhou***. Long-Term Resource Allocation Fairness in Average Markov Decision Process (AMDP) Environment. *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, May 2022.

J3 Mycal Tucker, **Yilun Zhou**, and Julie Shah. Latent Space Alignment Using Adversarially Guided Self-Play. *International Journal of Human-Computer Interaction (IJHCI)*, February 2022.

C7 **Yilun Zhou**, Serena Booth, Marco Tulio Ribeiro, and Julie Shah. Do Feature Attributions Correctly Attribute Features? *AAAI Conference on Artificial Intelligence (AAAI)*, February 2022.

C6 **Yilun Zhou**, Serena Booth, Nadia Figueroa, and Julie Shah. ROCUS: Robot Controller Understanding via Sampling. *Conference on Robot Learning (CoRL)*, November 2021.

C5 **Yilun Zhou**, Adithya Renduchintala, Xian Li, Sida Wang, Yashar Mehdad, and Asish Ghoshal. Towards Understanding the Behaviors of Optimal Deep Active Learning Algorithms. *Artificial Intelligence and Statistics (AISTATS)*, April 2021.

C4 Serena Booth*, **Yilun Zhou***, Ankit Shah, and Julie Shah. BAYES-TREX: a Bayesian Sampling Approach to Model Transparency by Example. *AAAI Conference on Artificial Intelligence (AAAI)*, February 2021.

W3 Serena Booth*, Ankit Shah*, **Yilun Zhou***, and Julie Shah. Sampling Prediction-Matching Examples in Neural Networks: A Probabilistic Programming Approach. *AAAI Conference on Artificial Intelligence (AAAI) Workshop on Statistical Relational AI*, February 2020.

P1 Mycal Tucker, **Yilun Zhou**, and Julie Shah. Adversarially Guided Self-Play for Adopting Social Conventions. *arXiv:2001.05994*.

- W2 **Yilun Zhou**, Julie Shah, and Steven Schockaert. Learning Household Task Knowledge from WikiHow Descriptions. *International Joint Conference on Artificial Intelligence (IJCAI) Workshop on Semantic Deep Learning*, August 2019.
- C3 **Yilun Zhou**, Steven Schockaert, and Julie Shah. Predicting ConceptNet Path Quality Using Crowdsourced Assessments of Naturalness. *The Web Conference (WWW)*, May 2019.
- J2 **Yilun Zhou**, Benjamin Burchfiel, and George Konidaris. Representing, Learning, and Controlling Complex Object Interactions. *Autonomous Robots (AuRo)*, April 2018.
- W1 **Yilun Zhou** and Kris Hauser. 6DOF Grasp Planning by Optimizing a Deep Learning Scoring Function. *Robotics: Science and Systems (RSS) Workshop on Revisiting Contact - Turning a Problem into a Solution*, July 2017.
- C2 **Yilun Zhou** and Kris Hauser. Incorporating Side-Channel Information into Convolutional Neural Networks for Robotic Tasks. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2017.
- J1 Kris Hauser and **Yilun Zhou**. Asymptotically Optimal Planning by Feasible Kinodynamic Planning in a State-Cost Space. *IEEE Transactions on Robotics (TRO)*, December 2016.
- C1 **Yilun Zhou** and George Konidaris. Representing and Learning Complex Object Interactions. *Robotics: Science and Systems (RSS)*, June 2016.