Yifan Zhu

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Education

2019-23	**Ph.D.**, Computer Science, University of Illinois Urbana-Champaign (Advisor: Kris Hauser)
2017-19	Electrical and Computer Engineering, Duke University (Transferred)
2013-17	**B.E.**, Mechanical Engineering, Vanderbilt University

Academic Appointments

2023–present	Postdoc, Grab Lab, Yale University (Advisor: Aaron Dollar)

Publications

Google Scholar
* Denotes Equal Contribution
† Denotes Main Supervisor

Under Review

[U1] J. Kim*, **Yifan Zhu***†, and A. Dollar, *Contact Estimation in Unstructured Environment through Approximate Local Geometry*, Under Review @ ICRA, 2024.

[U2] **Yifan Zhu**, A. Dollar, and Z. Pan, *Online Real-to-Sim via End-to-End Differentiable Simulation*, Under Review @ RA-L, 2024.

[U3] **Yifan Zhu***, M. Hao*, X. Zhu*, Q. Bateux, A. Wong, and A. Dollar, *Forces for Free: Vision-Based Contact Force Estimation with a Compliant Hand*, Under Review @ Science Robotics, 2024.

[U4] **Yifan Zhu***, P. Thangeda*, E. L. Tevere, A. Goel, E. Kramer, H. D. Nayar, M. Ornik, and K. Hauser, *Few-shot Scooping Under Domain Shift via Simulated Maximal Deployment Gaps*, Under Review @ IJRR, 2024.

Journal Articles

[J1] Correia Marques, Joao Marcos*, Naughton, Patrick*, Peng, Jing-Chen*, **Zhu, Yifan***, J. S. Nam, Q. Kong, X. Zhang, A. Penmetcha, R. Ji, N. Fu, *et al.*, "Immersive Commodity Telepresence with the Avatrina Robot Avatar," *International Journal of Social Robotics (IJSR)*, pp. 1–29, 2024.

[J2] Lu, Qingkai*, **Zhu, Yifan***, and L. Zhang, "Excavation Reinforcement Learning Using Geometric Representation," *IEEE Robotics and Automation Letters (RA-L)*, 2022.

[J3] **Zhu, Yifan**, A. Smith, and K. Hauser, "Automated Heart and Lung Auscultation in Robotic Physical Examinations," *IEEE Robotics and Automation Letters (RA-L)*, 2022.

Refereed Conference Proceedings

[C1] P. Thangeda, A. Goel, E. L. Tevere, **Zhu, Yifan**, E. Kramer, A. Daca, H. D. Nayar, K. Hauser, and M. Ornik, "Learning and Autonomy for Extraterrestrial Terrain Sampling: An Experience Report from OWLAT Deployment," in *AIAA SCITECH 2024 Forum*, 2024.

[C2] S. Yao, **Zhu, Yifan**, and K. Hauser, "Structured Bayesian Meta-Learning for Data-Efficient Visual-Tactile Model Estimation," in *Conference on Robot Learning (CoRL)*, 2024.

[C3] **Zhu, Yifan***, Thangeda, Pranay*, M. Ornik, and K. Hauser, "Few-shot Aadaptation for Manipulating Granular Materials under Domain Shift," in *Robotics: Science and Systems (R:SS)*, 2023.

[C4] **Zhu, Yifan**, L. Wang, and L. Zhang, "Excavation of Fragmented Rocks with Multi-modal Model-based Reinforcement Learning," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022.

[C5] G. Ma, S. R. Oca, **Zhu, Yifan**, P. J. Codd, and D. M. Buckland, "A Novel Robotic System for Ultrasound-guided Peripheral Vascular Localization," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

[C6] **Zhu, Yifan**, Z. Pan, and K. Hauser, "Contact-Implicit Trajectory Optimization With Learned Deformable Contacts Using Bilevel Optimization," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

[C7] **Zhu, Yifan**, K. Lu, and K. Hauser, "Semi-empirical simulation of learned force response models for heterogeneous elastic objects," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2020.

[C8] **Zhu, Yifan**, L. Abdulmajeid, and K. Hauser, "A Data-driven Approach for Fast Simulation of Robot Locomotion on Granular Media," in *International Conference on Robotics and Automation (ICRA)*, 2019.

[C9] **Zhu, Yifan**, P. J. Swaney, I. S. Godage, R. A. Lathrop, and R. J. Webster, "A disposable robot for intracerebral hemorrhage removal," in *Journal of Medical Devices*, 2016.

Refereed Workshop Papers

[W1] J. M. C. Marques, J.-C. Peng, P. Naughton, **Yifan Zhu**, S. Nam, and K. Hauser, "Commodity Telepresence with the AvaTRINA Nursebot in the ANA Avatar XPRIZE Finals," in *ICRA 2023 2nd Workshop Toward Robot Avatars*, 2023.

[W2] P. Naughton, J. S. Nam, J. M. Marques, J.-C. Peng, **Zhu, Yifan**, Q. Kong, and K. Hauser, "Pan-Tilt-Roll Televisualization With Adjustable Baseline Stereo," in *ICRA 2023 2nd Workshop Toward Robot Avatars*, 2023.

[W3] J. Marques, N. Patrick, **Zhu, Yifan**, N. Malhotra, and K. Hauser, "Commodity telepresence with the AvaTRINA nursebot in the ANA Avatar XPRIZE semifinals," in *R:SS 2022 Workshop on Towards robot avatars: perspectives on the ANA Avatar XPRIZE competition*, 2022.

[W4] **Zhu, Yifan**, A. Smith, and K. Hauser, "Informative path planning for automatic robotic auscultation," in *ICRA 2021 Workshop on Impact of COVID-19 on Medical Robotics and Wearables Research*, 2021.

Teaching

University of Illinois Urbana-Champaign

2020 Teaching Assistant, Intelligent Robotics

Duke University

2018 Teaching Assistant, Intro to Robotics and Automation

Vanderbilt University

2015,2016 Teaching Assistant, Intro to Robotics

Academic Advising

Graduate

Jinhoo Kim	Master's Student at ETH Zurich, Visiting Scholar at Yale University
Mei Hao	Ph.D. Student at Yale University
Jing-chen Peng	Now Ph.D. student at Georgia Tech
Tianyi Xiang	Master's Student at Yale University

Undergraduate

Tracy Lu	Now Ph.D. student at CalTech
Kai Lu	Now Ph.D. student at Oxford University
Xuanpu Zhang	Now Engineer at Mujin
Qianxi Kong	Now Master's Student at CMU
WonJoon Lee	
Yuecheng Li	
Johnny Chang	
Rohan Prasad	

Academic Service

Journal Reviewer

TRO, RA-L, JMD, RAM

Conference Reviewer

ICRA, IROS, SIGGRAPH, SIGGRAPH Asia, CASE

Other Experience

2021 Research Intern, Baidu Robotics & Autonomous-driving Lab, Sunnyvale, CA

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