Lin Shao

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RESEARCH STATEMENT

As a roboticist, my goal is to build learning systems for robots to interact with the real world. My research lies at the intersection of robotics, artificial intelligence, and cognitive science. I focus on developing methods to endow robots with the abilities of perception, manipulation, conceptualization, and generalization.

EDUCATION

Stanford University, Stanford, CA, USA — *Mar 2016-Present*
Ph.D. in Computational and Applied Mathematics
Advisor: Jeannette Bohg
Co-advisor: Leonidas J. Guibas

Stanford University, Stanford, CA, USA — *Sep 2014-Jun 2017*
M.S. in Computational and Applied Mathematics

Nanjing University, Nanjing, Jiangsu, China — *Sep 2009-Jul 2014*
B.S. in Geochemistry
Double Major in Information and Computational Sciences

PUBLICATIONS

[1] **Lin Shao**, Yifan You, Mengyuan Yan, Qingyun Sun, Jeannette Bohg. GRAC: Self-Guided and Self-Regularized Actor-Critic. *NeurIPS 2020 Workshop on Deep Reinforcement Learning*, 2020.

[2] Jialei Huang*, Guanqi Zhan*, Qingnan Fan, Kaichun Mo, **Lin Shao**, Baoquan Chen, Leonidas J. Guibas, Hao Dong. Generative 3D Part Assembly via Dynamic Graph Learning. *Conference on Neural Information Processing Systems (NeurIPS)*, 2020.

[3] Yichen Li*, Kaichun Mo*, **Lin Shao**, Minhyuk Sung, Leonidas J. Guibas. Learning 3D Part Assembly from a Single Image. *European Conference on Computer Vision (ECCV)*, 2020.

[4] Shenli Yuan, **Lin Shao**, Connor L. Yako, Alex Gruebele, J. Kenneth Salisbury. Design and Control of Roller Grasper V2 for In-Hand Manipulation. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020.

[5] **Lin Shao**, Toki Migimatsu, Qiang Zhang, Karen Yang, Jeannette Bohg. Concept2Robot: Learning Manipulation Concepts from Instructions and Human Demonstrations. *Proceedings of Robotics: Science and Systems (RSS)*, 2020.

[6] **Lin Shao**, Toki Migimatsu, Jeannette Bohg. Learning to Scaffold the Development of Robotic Manipulation Skills. *IEEE International Conference on Robotics and Automation (ICRA)*, 2020.

[7] **Lin Shao**, Fabio Ferreira*, Mikael Jorda*, Varun Nambiar*, Jianlan Luo, Juan Aparicio Ojea, Oussama Khatib, Jeannette Bohg. UniGrasp: Learning a Unified Model to Grasp with Multifingered Robotic Hands. *IEEE Robotics and Automation Letters with ICRA'20 option*, 2020.

[8] Fabio Ferreira, **Lin Shao**, Tamim Asfour, Jeannette Bohg. Learning Visual Dynamics Models of Rigid Objects using Relational Inductive Biases. *NeurIPS 2019 Workshop on Graph Representation Learning*, 2019.

[9] **Lin Shao**, Parth Shah*, Vikranth Dwaracherla*, Jeannette Bohg. Motion-based Object Segmentation based on Dense RGB-D Scene Flow. *IEEE Robotics and Automation Letters with IROS'18 option*, 2018.

[10] **Lin Shao**, Angel Chang, Manolis Savva, Hao Su, Leonidas Guibas. Cross-model Attribute Transfer for Rescaling 3D Models. *IEEE International Conference on 3D Vision (3DV)*, 2017.

PREPRINTS

[1] Yifan You*, **Lin Shao***, Toki Migimatsu, Jeannette Bohg. Learning to Hang Arbitrary Objects with Contact Point Correspondence and Neural Collision Estimation. *Under Review: IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

[2] **Lin Shao**, Ye Tian, Jeannette Bohg. ClusterNet: Instance Segmentation in RGB-D Images. *ArXiv preprint arXiv:1807.08894*, 2018.

DISSERTATION

Lin Shao. See, Act, and Conceptualize: A Learning System for Robots to Interact With the World. *Ph.D. Thesis, Stanford University*.

SERVICES

Conference Reviewer

- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- Proceedings of Robotics: Science and Systems (RSS)
- International Symposium on Robotics Research (ISRR)
- Conference on Robot Learning (CoRL)

Journal Reviewer

- IEEE Robotics and Automation Letters (RA-L)
- IEEE Transactions on Robotics (T-RO)

TEACHING

Teaching Assistant, Stanford University

- CS223A: Introduction to Robotics *Winter 2017-2018*
- CS468: Machine Learning for 3D Data *Spring 2016-2017*

CONTESTS

Ranked 3rd in MineRL NeurIPS 2020 Competition: Sample Efficient Reinforcement Learning in Minecraft, Oct 15, 2020.

Ranked 2nd in Phase Two Real Robot Challenge: Learn Dexterous Manipulation on a Real Robot, Oct 29, 2020.

MENTORSHIP

Stanford University

- Connor L. Yako, Mechanical Engineering, Next: Ph.D. student at Stanford
- Varun Nambiar, Electrical Engineering, Next: ML Engineer at Apple
- Yichen Li, Computer Science
- Karen Yang, Electrical Engineering

Visiting Scholar Mentor

- Fabio Ferreira, KIT, Next: Ph.D. student at University of Freiburg
- Fan Yang, Tsinghua University, Next: Master student at CMU
- Qiang Zhang, Shanghai Jiao Tong University
- Yifan You, University of California Los Angeles