

EDUCATION

Columbia University, Creative Machines Lab, New York, NY

Ph.D. candidate in Mechanical Engineering, Robotics, Advisor: Prof. Hod Lipson

Sep 2023 - Present

Graduate Student Associate in **AI Institute in Dynamic Systems**

Research Interests: Robotics, Simulation, 3D Vision, Graphics

Master of Science in Mechanical Engineering, Research Track, GPA: 4.04/4.3

Sep 2021 - May 2023

Huazhong University of science and technology (HUST), Wuhan, Hubei

Bachelor of Engineering in Mechanical Engineering, Qiming College, GPA: 3.72/4.0

Sep 2017 - Jun 2021

PUBLICATIONS

- [Jiong Lin](#), [Jialong Ning](#), [Judah Goldfeder](#), [Hod Lipson](#)
Generative Synthesis of Kinematics Mechanisms, **NeurIPS 2025** Creative AI Track, [Project Page](#)
- [Jiong Lin](#), [Lechen Zhang](#), [Kwansoo Lee](#), [Jialong Ning](#), [Judah Goldfeder](#), [Hod Lipson](#)
AutoURDF: Unsupervised Robot Modeling from Point Cloud Frames Using Cluster Registration, **CVPR 2025**, [Project Page](#)
- [Yuhang Hu](#), [Jiong Lin](#), [Hod Lipson](#)
Teaching Robots to Build Simulations of Themselves, **Nature Machine Intelligence 2025**
- [Yuhang Hu](#), [Boyuan Chen](#), [Jiong Lin](#), [Yunzhe Wang](#), [Yingke Wang](#), [Cameron Mehlman](#), [Hod Lipson](#)
Human-Robot Facial Co-expression, **Science Robotics 2024**

RESEARCH

Reconstruct URDFs from Point Cloud Videos, *Columbia University*, Advisor: Prof. Hod Lipson Jan 2024 – Dec 2024

- Designed an unsupervised learning pipeline that derives URDF from point cloud frames

Visual Self-model for Robot Morphologies, *Columbia University*, Advisor: Prof. Hod Lipson Sep 2022 - Sep 2023

- Trained a spatial query model representing robot 3D shapes, supervised with fixed view 2D images
- Designed an online training pipeline for the robot's morphology and kinematics representation

Robotic Face (co-expression and lip synchronization), *Columbia University*, Advisor Prof. Hod Lipson Sep 2021 - Aug 2022

- Trained the learning model mapping from facial image to robot motor control
- Implemented the control code for a camera tracking demo on Raspberry Pi and Jetson

Undergraduate Thesis Project, *HUST* Nov 2020 - Mar 2021

- Designed a five-degree-freedom manipulator for the rebar-tying system
- Simulated and optimized the robot's control system with MATLAB

COURSE PROJECTS

Bipedal Robot Design and Control, *Columbia University* Sep 2022 - Nov 2022

Designed a parallel-linked legged robot and controlled the servo motors through Raspberry Pi. Set up the simulation and RL pipeline in OpenAI Mujoco. Different sinusoidal gait algorithms were implemented in the simulator and the real robot.

Soft robot Locomotion in simulation, *Columbia University* Sep 2021 - Dec 2021

Built a physical simulator with OpenGL and trained the soft robots to have Jumping Gait in the simulator with genetic algorithms.

Chinese Chess Robot, *HUST* Dec 2020

Designed and built a delta manipulator with a sucking disk hand. Wrote the onboard control code: inverse kinematics, motors control, vision, and chess algorithms (alpha-beta pruning).

ACTIVITIES

Zhou Pei yuan Mechanics Competition, Excellence Award 2019

HUST robotics team (Robocon), team member 2019

National Industrial and Information Technology Talent Assessment, Member 2018

China Physical Olympiad, Second Prize in Hubei Province High School

SKILLS

CS: Python, OpenGL, Linux, ROS, Pybullet, Mujoco, Taichi, Latex

ME: Solidworks, Blender, Ansys, MATLA