

Thomas Power

✉ power.tjp@gmail.com | 🏠 <https://powertj.github.io/> | 💻 <https://github.com/powertj> |
🔗 https://scholar.google.com/citations?user=anmZ_fMAAAAJ&hl

Education

University of Michigan

PHD ROBOTICS

- Thesis title: *Learning & Inference for Adaptable Manipulation Planning*
- Advisor: Prof. Dmitry Berenson

Ann Arbor, MI, USA

08/2018 - 06/2024

University of Michigan

MS ROBOTICS

Ann Arbor, MI, USA

08/2018 - 05/2020

Imperial College London

MENG MECHANICAL ENGINEERING

London, UK

10/2012 - 07/2016

Experience

Research Engineer

GOOGLE DEEPMIND

- Working on simulation-based research and synthetic data generation in the MuJoCo team

London, UK

11/2024 - Pres.

Graduate Research Assistant

UNIVERSITY OF MICHIGAN, ROBOTICS INSTITUTE, ARM LAB

- Research on using machine learning & trajectory optimization for robotic manipulation. Particularly interested in accelerating trajectory optimization under uncertainty using inference and generative modeling techniques
- Published work in T-RO, RSS, RA-L, and workshops at IROS, ICRA & NeurIPS

Ann Arbor, MI, USA

08/2018 - 06/2024

Research Intern

HONDA RESEARCH INSTITUTE

- Developed algorithms combining reinforcement learning and planning for dexterous manipulation and tool-use with multi-fingered hand

San Jose, CA, USA

05/2022 - 08/2022

Artificial Intelligence Engineer

LUFFY AI

- Neuroevolution for learning adaptive controllers & sim-to-real transfer
- Built proof-of-concept test set-up for training controller in simulation and deploying in hardware

Oxford, UK

02/2021 - 08/2021

Publications

JOURNAL

F. Yang, **T. Power**, S. A. Marinovic, S. Iba, R. S. Zarrin, D. Berenson. Multi-finger Manipulation via Trajectory Optimization with Differentiable Rolling and Geometric Constraints, *IEEE Robotics and Automation Letters*, 2025

T. Power & D. Berenson. Constrained Stein Variational Trajectory Optimization, *IEEE Transactions on Robotics*, 2024

T. Power & D. Berenson. Learning a Generalizable Trajectory Sampling Distribution for Model Predictive Control. *IEEE Transactions on Robotics*, 2024

T. Power & D. Berenson. Keep it Simple: Data-efficient Learning for Controlling Complex Systems with Simple Models. *IEEE Robotics and Automation Letters* (presented at ICRA), 2021.

D. McConachie, **T. Power**, P. Mitrano, & D. Berenson. Learning When to Trust a Dynamics Model for Planning in Reduced State Spaces. *IEEE Robotics and Automation Letters* (presented at ICRA), 2020

CONFERENCE

A. Khumar*, **T. Power***, F. Yang, S. A. Marinovic, S. Iba, R. S. Zarrin, D. Berenson. Diffusion-Informed Probabilistic Contact Search for Multi-Finger Manipulation, ICRA, 2025

T. Power & D. Berenson, Variational Inference MPC using Normalizing Flows and Out-of-Distribution Projection. *Robotics: Science and Systems*, 2022

REFEREED WORKSHOP

T. Power, R. S. Zarrin, S. Iba & D. Berenson, Sampling Constrained Trajectories Using Composable Diffusion Models. *Differentiable Probabilistic Robotics Workshop, IROS*, 2023

M.S. Sharma, **T. Power** & D. Berenson, Task-space Kernels for Diverse Stein Variational MPC, *Differentiable Probabilistic Robotics Workshop, IROS*, 2023

T. Power & D. Berenson, Improving Sample-based MPC with Normalizing Flows & Out-of-distribution Projection. *Motion Planning with Implicit Neural Representations of Geometry Workshop, ICRA*, 2022

T. Power & D. Berenson, Variational Inference MPC for Robot Motion with Normalizing Flows. *Robot Learning Workshop, NeurIPS*, 2021

T. Power & D. Berenson, Data-efficient Control from Images by Learning How to Use a Simple Model. *Machine Learning in Planning and Control of Robot Motion Workshop, ICRA*, 2020

Professional Service

Robotics Outreach Ambassador at the University of Michigan Robotics Department (2023)

Mentor for African Undergraduate Research Adventure (AURA) program at the University of Michigan (2023)

Reviewer for ICRA (2021), RA-L (2021, 2024), WAFR (2022), IJRR (2023), CoRL (2023 - 2025), T-RO (2023, 2024), RSS (2023, 2024)

Program Committee for Robot Learning Workshop, NeurIPS, (2021, 2022)

Organizer for Differentiable Probabilistic Robotics Workshop, IROS, 2023

Scientific Committee for *Back to the Future: Robot Learning Going Probabilistic* Workshop, ICRA 2024

Skills

Computer Languages, Python, C++, MatLab

Tools & Libraries, Git, ROS, PyTorch, Jax, NumPy, Gazebo, Bullet, MuJoCo, IsaacGym, Linux