Eley Ng

Updated May 29, 2026

CONTACT

Email: [first name][last name]media[at]gmail[dot]com
Website: https://eleyng.github.io **GitHub:** https://github.com/eleyng

SUMMARY

7+ yrs of ML experience. Always interested in real-time interactive systems. Currently scaling production user models; received PhD in planning and imitation learning for human-in-the-loop robotic systems.

EDUCATION

Stanford University Stanford, CA
PhD in Mechanical Engineering Sept. 2019 – June 2023
Advisor: Monroe Kennedy, **Committee**: Dorsa Sadigh, Mac Schwager

Stanford University Stanford, CA
MS in Mechanical Engineering Sept. 2017 – June 2019

University of Texas at Austin Austin, TX
BS in Mechanical Engineering, Top 5% of Class Aug. 2013 – May 2017

RELEVANT EXPERIENCE

Diffusion Co-Policy for Human-Robot Collaboration

- Developed a Transformer-based conditional diffusion policy via imitation learning to predict joint human-robot action trajectories, executing robot actions within a model predictive control (MPC) framework.
- Achieved a 10–20% improvement in task success over state-of-the-art learning methods in both simulated and real-world collaborative table-carrying experiments with human in the loop.
- Enabled highly synergistic and interactive non-verbal robot behaviors, demonstrating shared task understanding and adaptive leadership (e.g., dynamically pivoting to prevent obstacle collisions).
- Led and executed project end-to-end over 5 months, driving ideation, simulation, real-world robot setup, model training and evaluation, and final technical validation.

Sampling Waypoint Predictions for a Cooperative Planner

- Developed a learned, sampling-based planner with a Variational Recurrent Neural Network (VRNN) for generating waypoint trajectories.
- Designed and executed human-in-the-loop experiments that showed 10-40% improvement in task success rate over non-learning methods, and a Turing Test that demonstrated perceived human-likeness of generated trajectories.

Learning Sampling Distributions for States and Joint Actions

- Made an open-source, continuous state-action gym environment for human-robot collaborative table-carrying with customizable map configurations.

- Developed a model-based reinforcement learning framework using learned models of long-horizon human-robot actions and task dynamics.
- Implemented behavior recognition models with various generative models in PyTorch, including mixture density RNNs, VAEs, and VQVAEs.

SELECT PUBLICATIONS

[3] **E. Ng**, Z. Liu, and M. Kennedy. Diffusion Co-Policy for Synergistic Human-Robot Collaborative Tasks. *IEEE Robotics and Automation Letters (RA-L), 2023.*

[2] **E. Ng**, Z. Liu, and M. Kennedy. It Takes Two: Learning to Plan for Human-Robot Cooperative Carrying. *IEEE International Conference on Robotics and Automation (ICRA), 2023.*

[1] **E. Ng**, Z. Liu, and M. Kennedy. Learning Action and State Sampling Distributions for Human-Robot Collaboration. *Workshop on Learning from Diverse, Offline Data, Robotics: Science and Systems (RSS), 2022.*

WORK EXPERIENCE

Meta, New York, NY Aug 2024 - Present
Research Scientist in CoreML Modeling group. Working on scaling sequential user models, building temporal data sources, unified multi-modal representations, and representation learning with diffusion models.

Aurora Flight Sciences, Cambridge, MA Mar 2024 - Jun 2024
Staff AI/ML Research Scientist in the Autonomy group under Dr. Sildomar Monteiro. Led two grant proposals and a project on fine-tuned image dataset augmentation with diffusion models.

Amazon Robotics, Boston, MA Sept - Dec 2023
Applied science internship with the Robotic Manipulation Group under Erica Aduh. Led research project on diffusion-based visuo-motor policies integrated with 3D perception for scooping from cluttered bins with real robots.

NASA Ames, Mountain View, CA Jun - Aug 2017
Research internship with the Diagnostics and Prognostics Group in the Intelligent Systems Division under Christopher Teubert.

Intel Corporation, Hillsboro, OR Jun - Aug 2016
Mechanical design internship on Project Alloy in the New Technology Group.

Oregon State University, Corvallis, OR Jun - Aug 2015
Research Internship in soft robotic actuators under Dr. Yiğit Mengüç.

Sandia National Laboratories, Albuquerque, NM Jun 2014 - Jun 2015
Internship in computational finite element analysis under Dr. Michael Pasik.

SKILLS

Programming *Proficient*: Python, MATLAB, Bash; *Familiar*: C++
Data Science NumPy, Matplotlib, SciPy, scikit-learn, Pandas
Learning PyTorch, PyTorch Lightning, AWS, Hydra
Robotics/HW ROS, Open AI Gym, UR5e/Robotiq/Locobot, Zivid/Realsense

AWARDS & GRANTS

Joel H. Ferziger Memorial Fellowship	2020-2023
Human-Centered AI (HAI) Seed Grant	2020
NSF Graduate Research Fellowship	2017
UT Austin Leadership Collaborative Award	2017
Undergraduate Research Fellowship	2014
SanDisk Engineering Scholarship	2013
2nd Place National Winner, Toshiba Science Competition	2012

TEACHING

CS 339R (ME 326): Collaborative Robotics Winter 2022
Teaching Assistant, Stanford University. *Average student rating: 4.25/5.00.*

ENGR 15: Dynamics Fall 2021
Teaching Assistant, Stanford University. *Average student rating: 4.33/5.00.*

MENTORING

Ziang Liu (PhD CS, Cornell), Bryn M. Hughes (BS CS, Stanford), J.D. Kelly (BS EE, Stanford), Ahad Rauf (ME PhD, Stanford)

OUTREACH

Stanford Mechanical Engineering Women's Group 2020 – Present
Served as social chair.

Research Mentor, SURI Program 2019 - 2020
Mentored undergraduates on developing an American Sign Language app.

WME President, VP, Outreach Chair 2014 - 2017
Served as VP, President, and Outreach chair. Sought and secured funding; coordinated speakers from industry and academia for outreach and recruitment.

MEUAB Nominated Member 2016 - 2017
Selected to serve on the Undergraduate Advisory Board to discuss and implement department changes with faculty.