Dylan P. Losey

Contact
213D Goodwin Hall
635 Prices Fork Road
Blacksburg, VA 24061
losey@vt.edu
https://dylanlosey.com/

Research Interests
Human-robot interaction, machine learning, and control theory, with applications in personal and assistive robots.

Current Position

Virginia Tech
Assistant Professor   August 2020 – Present
Department of Mechanical Engineering

Education

Stanford University
Postdoctoral Scholar in Computer Science   2019 – 2020
Advisor: Dorsa Sadigh

Rice University
Ph.D. in Mechanical Engineering   2018
M.S. in Mechanical Engineering   2016
Dissertation: *Responding to Physical Human-Robot Interaction*
Advisor: Marcia K. O'Malley

Vanderbilt University
B.E. in Mechanical Engineering   2014

Honors & Awards

National Science Foundation
CAREER Award   2024

IEEE Transactions on Haptics
Best Application Paper Award   2024

Virginia Tech
Outstanding New Assistant Professor   2023

IEEE/RSJ International Conference on Intelligent Robots and Systems
Finalist, Best RoboCup Paper Award   2021

Conference on Robot Learning
Best Paper Award   2020

Robotics: Science and Systems
Finalist, Best Student Paper Award   2020

ACM/IEEE International Conference on Human-Robot Interaction
Honorable Mention, Best Paper Award   2020

Rice University Outstanding Ph.D. Thesis	2019
IEEE/ASME Transactions on Mechatronics Best Paper Award	2017
IEEE Conference on Biomedical Robotics and Biomechatronics Finalist, Best Student Paper Award	2016
National Science Foundation Graduate Research Fellowship	2014
Vanderbilt University Dynamics & Controls Award	2014
Vanderbilt University Cornelius Vanderbilt Scholarship	2010

Teaching

ME 3534: Controls Engineering I
Instructor, Virginia Tech   Spring 2024 – 2025

ME 4524: Robotics & Automation
ME 4584: Robotics Laboratory
Instructor, Virginia Tech   Spring 2021, Fall 2021 – 2024

ME 5704 / ECE 5704: Robotics & Automation
Instructor, Virginia Tech   Fall 2023 – 2024

ME 4824: Introduction to Human-Robot Interaction
Course Developer and Instructor, Virginia Tech   Spring 2022 – 2023

ME 5824 / CS 5844: Algorithmic Human-Robot Interaction
Course Developer and Instructor, Virginia Tech   Spring 2022 – 2023

Interdisciplinary Capstone
Advisor, Virginia Tech   2024 – 2025

ME 4015 / ME 4016: Engineering Design and Project
Advisor, Virginia Tech   2020 - 2024

Advising & Mentoring

Current Postdoctoral Scholars
Heramb Nemlekar

Current Ph.D. Students
Shaunak Mehta, Sagar Parekh, Shahabedin Sagheb, Benjamin Christie, Yinlong Dai

Current M.S. Students
Maya Keely, Robert Ramirez Sanchez

Past Ph.D. Students
Soheil Habibian, Ananth Jonnavittula

Past M.S. Students
Joshua Hoegerman, Benjamin Christie, Ritish Shailly

Outreach

Women in Mechanical Engineering Tea (WeMET)   2022 – Present
I founded and sponsor this program at Virginia Tech. WeMET provides an opportunity for female graduate students across different research groups to get to know each other, socialize, discuss the highs and lows of graduate school, and foster diversity. Participants meet monthly and chat over tea.

Women's Preview Weekend   2021 – Present
I host lab visits for this yearly event. During Women's Preview Weekend prospective students who have been offered admission to Virginia Tech visit the campus and learn about ongoing research.

Engineering Open House   2022 – Present
I give talks on robotics and machine learning at this yearly event. Engineering Open House enables high school students and their families to learn more about engineering at Virginia Tech.

RoboGrinder   2023 – Present
I am the faculty advisor for this Virginia Tech student team. The group of around 50 undergraduates from multiple departments designs, builds, and programs a robot for national and international competitions

Stanford AI Mentor   2019 – 2020
I mentored in this SAIL program, where we connected underrepresented minorities and female undergraduate students interested in AI with Ph.D. students to meet monthly and discuss research and career choices.

AI4ALL   2019 – 2020
I shared our lab's research in human-robot interaction with female high-schools students participating in AI4ALL, and lectured on how we write code to control robots at Stanford University.

TOMODACHI-STEM   2018
I mentored a female undergraduate student from Japan throughout a mechantronics research project as a part of this Rice University program meant to provide an introduction to higher education and opportunities for cultural engagement.

Professional Activities

Journal Associate Editor
ACM Transactions on Human-Robot Interaction (THRI)   2021 – Present
IEEE Robotics and Automation Letters (RA-L)   2020 – 2023

Conference Associate Editor
IEEE International Conference on Intelligent
    Robots and Systems (IROS)   2021, 2022
IEEE International Symposium on Multi-Robot
    and Multi-Agent Systems (MRS)   2021

Workshop Organizer
ICRA: *Towards Collaborative Partners: Design, Shared Control, and Robot Learning*   2024
ICRA: *Communicating Robot Learning across Human-Robot Interaction*   2023
RSS: *Emergent Behaviors in Human-Robot Systems*   2020

Center for Human-Computer Interaction
Member, Virginia Tech CHCI   2021 – Present

Editorial Board
Stanford Artificial Intelligence Lab (SAIL) Blog   2019 – 2020

External Reviewer
NSF Panels, Journals including The International Journal of Robotics Research, IEEE
Transactions on Robotics, IEEE Robotics and Automation Letters, ACM Transactions
on Human-Robot Interaction, Autonomous Robots, and IEEE/ASME Transactions on
Mechatronics, Conferences including ICRA, RSS, CoRL, IROS, and HRI

Invited Talks

University of Utah
Robotics Seminar   2025
What does it take to learn from humans?

Cornell University
MAE Colloquium Seminar Series   2024

The University of Texas at Austin
Oden Institute Seminar   2024
Robots that Learn to Influence Humans

Rice University
Mechanical Engineering Seminar   2024

University of Tennessee, Knoxville
MABE Distinguished Seminar   2024

The Boeing Company
Boeing Distinguished Researcher and Scholar Seminar   2023

University of Waterloo
Mechanical Engineering Seminar   2023

Vanderbilt University
Mechanical Engineering Seminar   2022

Worcester Polytechnic Institute
Robotics Engineering Colloquium   2022

Commonwealth Cyber Initiative
Integrated Security Seminar   2022

University of California, Berkeley
CITRIS People and Robots Seminar   2022

Purdue University
Robotics Seminar   2021
Interactive, Inclusive, and Revealing Robot Learners

University of Illinois Urbana-Champaign
Human-Centered Autonomy Lab   2021

University of Virginia
ESE Colloquium   2021

University of California, Berkeley
InterACT Lab   2021
Towards Inclusive and Revealing Robot Learners

University of California, Berkeley
Model Predictive Control Lab   2020
Latent Roles and Strategies in Multi-Agent Interaction

IEEE International Conference on Robotics and Automation
Workshop on Interactive Robot Learning   2020
Personalizing Robots through Learned Latent Actions

University of North Carolina
Computer Science Seminar   2020
Personalizing Robots with Mechanics and Learning

University of Washington
Mechanical Engineering Seminar   2020

Boston University
Mechanical Engineering Seminar   2020

Notre Dame
Aerospace and Mechanical Engineering Seminar   2020

Virginia Tech
Mechanical Engineering Seminar   2020

Colorado School of Mines
Mechanical Engineering Seminar   2020

Stanford University
Robotics Seminar   2020

Amazon Research Awards   2019
Controlling Assistive Robots with Learned Latent Actions

Massachusetts Institute of Technology
Computer Science & Artificial Intelligence Lab   2019
Personalizing Robots with Physics and Intelligence

Harvard University
Harvard Biodesign Lab   2019

Boston University
Center for Information & Systems Engineering Seminar   2019

University of Illinois Urbana-Champaign
Mechanical Engineering & Computer Science Seminars   2019
Responding to Physical Human-Robot Interaction

Journal Papers

30. Shahabedin Sagheb, Sagar Parekh, Ravi Pandya, Ye-Ji Mun, Katherine Driggs-Campbell, Andrea Bajcsy, and Dylan P. Losey, "A unified framework for robots that influence humans over long-term interaction," *The International Journal of Robotics Research*, 2025 (in review).

29. Maya Keely, Brandon Franco, Casey Grothoff, Rajat Kumar Jenamani, Tapomayukh Bhattacharjee, Dylan P. Losey, and Heramb Nemlekar, "Kiri-Spoon: A kirigami utensil for robot-assisted feeding," *The International Journal of Robotics Research*, 2025 (in review).

28. Heramb Nemlekar, Robert Ramirez Sanchez, and Dylan P. Losey, "PECAN: Personalizing robot behaviors through a learned canonical space," *ACM Transactions on Human-Robot Interaction*, 2024 (in review).

27. Shahabedin Sagheb, Soham Gandhi, and Dylan P. Losey, "Should collaborative robots be transparent?," *International Journal of Social Robotics*, 2024 (in review).

26. Shaunak A. Mehta, Yusuf Ciftci, Balamurugan Ramachandran, Somil Bansal, and Dylan P. Losey, "Stable-BC: Controlling covariate shift with stable behavior cloning," *IEEE Robotics and Automation Letters*, 2024 (in press).

25. Ananth Jonnavittula, Sagar Parekh, and Dylan P. Losey, "VIEW: Visual imitation learning with waypoints," *Autonomous Robots*, 2024 (in press).

24. Maya Keely, Yeunhee Kim, Shaunak A. Mehta, Joshua Hoegerman, Robert R. Sanchez, Emily Paul, Camryn Mills, Dylan P. Losey, and Michael D. Bartlett, "Combining and decoupling rigid and soft grippers to enhance robotic manipulation," *Soft Robotics*, 2024 (in press).

23. Soheil Habibian, Antonio Valdivia, Laura Blumenschein, and Dylan P. Losey, "A survey of communicating robot learning during human-robot interaction," *The International Journal of Robotics Research*, 2024. **(Featured on Journal Cover)**

22. Benjamin A. Christie and Dylan P. Losey, "LIMIT: Learning interfaces to maximize information transfer," *ACM Transactions on Human-Robot Interaction*, vol. 13, no. 4, pp. 1-26, 2024.

21. Shaunak A. Mehta and Dylan P. Losey, "Unified learning from demonstrations, corrections, and preferences during physical human-robot interaction," *ACM Transactions on Human-Robot Interaction*, vol. 13, no. 3, pp. 1-25, 2024.

20. Ananth Jonnavittula, Shaunak A. Mehta, and Dylan P. Losey, "SARI: Shared autonomy across repeated interaction," *ACM Transactions on Human-Robot Interaction*, vol. 13, no. 2, pp. 1-36, 2024.

19. Ryan Wright, Sagar Parekh, Robin White, and Dylan P. Losey, "Safely and autonomously cutting meat with a collaborative robot arm," *Scientific Reports*, vol 14, pp. 299, 2024.

18. Shaunak A. Mehta, Forrest Meng, Andrea Bajcsy, and Dylan P. Losey, "StROL: Stabilized and robust online learning from humans," *IEEE Robotics and Automation Letters*, vol. 9, no. 3, pp. 2303-2310, 2023.

17. Michael Hagenow, Emmanuel Senft, Nitzan Orr, Robert Radwin, Michael Gleicher, Bilge Mutlu, Dylan P. Losey, and Michael Zinn, "Coordinated multi-robot shared autonomy based on scheduling and demonstrations," *IEEE Robotics and Automation Letters*, vol. 8, no. 12, pp. 8335-8342, 2023.

16. Joshua Hoegerman and Dylan P. Losey, "Reward learning with intractable normalizing functions," *IEEE Robotics and Automation Letters*, vol. 8, no. 11, pp. 7511-7518, 2023.

15. Sagar Parekh, and Dylan P. Losey, "Learning latent representations to co-adapt to humans," *Autonomous Robots*, vol. 47, pp. 771–796, 2023.

14. Antonio Valdivia, Soheil Habibian, Carly Mendenhall, Francesco Fuentes, Ritish Shailly, Dylan P. Losey, and Laura Blumenschein, "Wrapping haptic displays around robot arms to communicate learning," *IEEE Transactions on Haptics*, vol. 16, no. 1, pp. 57-72, 2023. **(Best Application Paper Award)**

13. Soheil Habibian, Ananth Jonnavittula, and Dylan P. Losey, "Here's what I've learned: Asking questions that reveal reward learning," *ACM Transactions on Human-Robot Interaction*, vol. 11, no. 4, pp. 1-28, 2022.

12. Soheil Habibian and Dylan P. Losey, "Encouraging human interaction with robot teams: Legible and fair subtask allocations," *IEEE Robotics and Automation Letters*, vol. 7, no. 3, pp. 6685-6692, 2022.

11. Dylan P. Losey, Andrea Bajcsy, Marcia K. O'Malley, and Anca D. Dragan, "Physical interaction as communication: Learning robot objectives online from human corrections," *The International Journal of Robotics Research*, vol. 41, no. 1, pp. 20-44, 2022.

10. Erdem Biyik, Dylan P. Losey, Malayandi Palan, Nicholas C. Landolfi, and Dorsa Sadigh, "Learning reward functions from diverse sources of human feedback: Optimally integrating demonstrations and preferences," *The International Journal of Robotics Research*, vol. 41, no. 1, pp. 45-67, 2022.

9. Dylan P. Losey, Hong Jun Jeon, Mengxi Li, Krishnan Srinivasan, Ajay Mandlekar, Animesh Garg, Jeannette Bohg, and Dorsa Sadigh, "Learning latent actions to control assistive robots," *Autonomous Robots*, vol. 46, pp. 115–147, 2022.

8. James F. Mullen Jr, Josh Mosier, Sounak Chakrabarti, Anqi Chen, Tyler White, and Dylan P. Losey, "Communicating inferred goals with passive augmented reality and active haptic feedback," *IEEE Robotics and Automation Letters*, vol. 6, no. 4, pp. 8522-8529, 2021.

7. Dylan P. Losey and Marcia K. O'Malley, "Learning the correct robot trajectory in real-time from physical human interactions," *ACM Transactions on Human-Robot Interaction*, vol. 9, no. 1, pp. 1-19, 2019.

6. Dylan P. Losey, Laura Blumenschein, Janelle Clark, and Marcia K. O'Malley, "Improving short-term retention after robotic training by leveraging fixed-gain controllers," *Journal of Rehabilitation and Assistive Technologies Engineering*, vol. 6, pp. 1-13, 2019.

5. Dylan P. Losey and Marcia K. O'Malley, "Enabling robots to infer how end-users teach and learn through human-robot interaction," *IEEE Robotics and Automation Letters*, vol. 4, no. 2, pp. 1956-1963, 2019.

4. Dylan P. Losey and Marcia K. O'Malley, "Trajectory deformations from physical human-robot interaction," *IEEE Transactions on Robotics*, vol. 34, no. 1, pp. 126-138, 2018.

3. Dylan P. Losey, Craig G. McDonald, Edoardo Battaglia, and Marcia K. O'Malley, "A review of intent detection, arbitration, and communication aspects of shared control for physical human-robot interaction," *Applied Mechanics Reviews*, vol. 70, no. 1, 2018.

2. Dylan P. Losey, Andrew Erwin, Craig G. McDonald, Fabrizio Sergi, and Marcia K. O'Malley, "A time domain approach to control of series elastic actuators: Adaptive torque and passivity-based impedance control," *IEEE/ASME Transactions on Mechatronics*, vol. 21, no. 4, pp. 2085-2096, 2016. **(Best Paper Award)**.

1. Ali Utku Pehlivan, Dylan P. Losey, and Marcia K. O'Malley, "Minimal assist-as-needed controller for upper limb robotic rehabilitation," *IEEE Transactions on Robotics*, vol. 32, no. 1, pp. 113-124, 2016.

Refereed Conference Proceedings

34. Sagar Parekh, Lauren Bramblett, Nicola Bezzo, and Dylan P. Losey, "Using high-level patterns to estimate how humans predict a robot will behave," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2025 (in review).

33. Robert Ramirez Sanchez, Heramb Nemlekar, Shahabedin Sagheb, and Dylan P. Losey, "RECON: Reducing causal confusion with human-placed markers" *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2025 (in review).

32. Benjamin A. Christie, Heramb Nemlekar, and Dylan P. Losey, "Personalizing interfaces to humans with user-friendly priors," *IEEE International Conference on Robotics and Automation (ICRA)*, 2025.

31. Joshua Hoegerman, Shahabedin Sagheb, Benjamin A. Christie, and Dylan P. Losey, "Aligning learning with communication in shared autonomy," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

30. Shaunak A. Mehta, Soheil Habibian, and Dylan P. Losey, "Waypoint-based reinforcement learning for robot manipulation tasks," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

29. Maya N. Keely, Heramb Nemlekar, and Dylan P. Losey, "Kiri-Spoon: A soft shape-changing utensil for robot-assisted feeding," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

28. Shaunak A. Mehta, Yeunhee Kim, Joshua Hoegerman, Michael D. Bartlett, and Dylan P. Losey, "RISO: Combining rigid grippers with soft switchable adhesives," *IEEE International Conference on Soft Robotics (RoboSoft)*, 2023.

27. Shahabedin Sagheb, Ye-Ji Mun, Neema Ahmadian, Benjamin A. Christie, Andrea Bajcsy, Katherine Driggs-Campbell, and Dylan P. Losey, "Towards robots that influence humans over long-term interaction," *IEEE International Conference on Robotics and Automation (ICRA)*, 2023.

26. Sagar Parekh, Soheil Habibian, and Dylan P. Losey, "RILI: Robustly influencing latent intent," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022.

25. Antonio Alvarez Valdivia, Ritish Shailly, Naman Seth, Francesco Fuentes, Dylan P. Losey, and Laura H. Blumenschein, "Wrapped haptic display for communicating physical robot learning," *IEEE/RAS International Conference on Soft Robotics (RoboSoft)*, 2022.

24. Ehsan Yousefi, Dylan P. Losey, and Inna Sharf, "Assisting operators of articulated machinery with optimal planning and goal inference," *IEEE International Conference on Robotics and Automation (ICRA)*, 2022.

23. Shaunak A. Mehta, Sagar Parekh, and Dylan P. Losey, "Learning latent actions without human demonstrations," *IEEE International Conference on Robotics and Automation (ICRA)*, 2022.

22. Ananth Jonnavittula and Dylan P. Losey, "Communicating robot conventions through shared autonomy," *IEEE International Conference on Robotics and Automation (ICRA)*, 2022.

21. Ananth Jonnavittula and Dylan P. Losey, "Learning to share autonomy across repeated interaction," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021. **(Finalist, Best RoboCup Paper)**

20. Siddharth Karamcheti, Albert J. Zhai, Dylan P. Losey, and Dorsa Sadigh, "Learning visually guided latent actions for assistive teleoperation," *Learning for Dynamics & Control (L4DC)*, 2021.

19. Ananth Jonnavittula and Dylan P. Losey, "I know what you meant: Learning human objectives by (under)estimating their choice set," *IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

18. Mengxi Li, Alper Canberk, Dylan P. Losey, and Dorsa Sadigh, "Learning human objectives from sequences of physical corrections," *IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

17. Annie Xie, Dylan P. Losey, Ryan Tolsma, Chelsea Finn, and Dorsa Sadigh, "Learning Latent Representations to Influence Multi-Agent Interaction," *Conference on Robot Learning (CoRL)*, 2020. **(Best Paper Award)**

16. Mengxi Li, Dylan P. Losey, Jeannette Bohg, and Dorsa Sadigh, "Learning user-preferred mappings for intuitive robot control," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020.

15. Hong Jun Jeon, Dylan P. Losey, and Dorsa Sadigh, "Shared autonomy with learned latent actions," *Robotics: Science and Systems (RSS)*, 2020. **(Finalist, Best Student Paper)**

14. Dylan P. Losey, Krishnan Srinivasan, Ajay Mandlekar, Animesh Garg, and Dorsa Sadigh, "Controlling assistive robots with learned latent actions," *IEEE International Conference on Robotics and Automation (ICRA)*, 2020.

13. Minae Kwon, Erdem Biyik, Aditi Talati, Karan Bhasin, Dylan P. Losey, and Dorsa Sadigh, "When humans aren't optimal: Robots that collaborate with risk-aware humans," *ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2020. **(Honorable Mention, Best Paper)**

12. Dylan P. Losey, Mengxi Li, Jeannette Bohg, and Dorsa Sadigh, "Learning from my partner's actions: Roles in decentralized robot teams," *Conference on Robot Learning (CoRL)*, 2019.

11. Erdem Biyik, Malayandi Palan, Nicholas C. Landolfi, Dylan P. Losey, and Dorsa Sadigh, "Asking easy questions: A user-friendly approach to active reward learning," *Conference on Robot Learning (CoRL)*, 2019.

10. Dylan P. Losey and Dorsa Sadigh, "Robots that take advantage of human trust," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019.

9. Dylan P. Losey and Marcia K. O'Malley, "Including uncertainty when learning from human corrections," *Conference on Robot Learning (CoRL)*, 2018.

8. Andrea Bajcsy, Dylan P. Losey, Marcia K. O'Malley, and Anca D. Dragan, "Learning from physical human corrections, one feature at a time," *ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2018.

7. Andrea Bajcsy, Dylan P. Losey, Marcia K. O'Malley, and Anca D. Dragan, "Learning robot objectives from physical human interaction," *Conference on Robot Learning (CoRL)*, 2017.

6. Dylan P. Losey and Marcia K. O'Malley, "Effects of discretization on the K-width of series elastic actuators," *IEEE International Conference on Robotics and Automation (ICRA)*, 2017.

5. Ali Utku Pehlivan, Dylan P. Losey, Chad G. Rose, and Marcia K. O'Malley, "Maintaining subject engagement during robotic rehabilitation with a minimal assist-as-needed (mAAN) controller," *IEEE International Conference on Rehabilitation Robotics (ICORR)*, 2017.

4. Dylan P. Losey, Laura H. Blumenschein, and Marcia K. O'Malley, "Improving the retention of motor skills after reward-based reinforcement by incorporating haptic guidance and error augmentation," *IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob)*, 2016.

3. Dylan P. Losey, Craig G. McDonald, and Marcia K. O'Malley, "A bio-inspired algorithm for identifying unknown kinematics from a discrete set of candidate models by using collision detection," *IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob)*, 2016. **(Finalist, Best Student Paper Award)**

2. Ben D. Kramer, Dylan P. Losey, and Marcia K. O'Malley, "SOM and LVQ classification of endovascular surgeons using motion-based metrics," *Workshop on Self-Organizing Maps (WSOM)*, 2016.

1. Dylan P. Losey, Peter A. York, Philip J. Swaney, Jessica Burgner, and Robert J. Webster III, "A flexure-based wrist for needle-sized surgical robots," *SPIE Medical Imaging*, 2013.