Monroe D. Kennedy III, Ph.D.

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Curriculum vitae last updated: August 3, 2026

Education

Ph.D. 2019 Mechanical Engineering Applied Mechanics, University of Pennsylvania
Dissertation: Modeling and Control for Robotic Assistants: Single and Multi-robot Manipulation
M.S. 2016 Robotics, University of Pennsylvania
B.S. 2012 Mechanical Engineering, University of Maryland Baltimore County
A.S. 2006 Cuyahoga Community College

Positions Held

- **2019-present** Assistant Professor, Mechanical Engineering Department, Stanford University
- **2021-present** Courtesy appointment, Computer Science Department, Stanford University
- **2019** Technical Staff in Group 76, MIT Lincoln Laboratory

Research Interests

My research focuses on developing principles and tools needed to realize collaborative robotics (human-robot collaboration), robotic autonomy and robotic manipulation. Topics that are of particular interest to me include: (1) Robotic Assistants: collaborative robots that work for or alongside human teammates and require modeling of complex tasks and (human) teammate behavior. (2) Connected Devices: passive robotic platforms that enhance an ability of the human user and leverage situational awareness to assist and predict the human users needs. (3) Intelligent Wearables: devices that either augment or enhance a humans ability and is worn on the individual, such devices require situational awareness, and prediction of users intent and actions in order to serve the human users needs. Solutions rely on combination of tools in dynamical systems analysis, control theory (classical, non-linear and robust control), state estimation and prediction, motion planning, vision for robotic autonomy and machine learning. Application areas include autonomous assistive technology, robotic assistants with the goal of deployment for service tasks that may be highly dynamic and require dexterity, situational awareness, as well as human-robot collaboration.

Awards and Certificates

- National Science Foundation Faculty Early Career Development (CAREER) Award - Foundational Robotics Research (FRR), CMMI. Award number 2142773.
- National Science Foundation Graduate Fellow [University of Pennsylvania]
- GEM Fellow [University of Pennsylvania]
- Outstanding Teaching Assistant Award in Mechanical Engineering [University of Pennsylvania]
- Center for Teaching and Learning (CTL) Teaching Certificate [University of Pennsylvania]
- Meyerhoff Scholar [University of Maryland, Baltimore County]
- Tau Beta Pi Honors Society [University of Maryland, Baltimore County]

Journal Articles

[1] Won Kyung Do, Matthew Strong, Aiden Swann, Boshu Lei, and Monroe Kennedy. Tensortouch: Calibration of tactile sensors for high resolution stress tensor and deformation for dexterous manipulation. *IEEE Transactions on Robotics*, pages 1–20, 2026.

[2] Aiden Swann, Alex Qiu, Matthew Strong, Angelina Zhang, Samuel Morstein, Kai Rayle, and Monroe Kennedy. Dexfruit: Dexterous manipulation and gaussian splatting inspection of fruit. *IEEE Robotics and Automation Letters*, 11(2):2034–2041, 2026.

[3] Weizhuo Wang, Yanjie Ze, C. Karen Liu, and Monroe Kennedy. Learning humanoid navigation from human data. *IEEE Robotics and Automation Letters*, pages 1–8, 2026.

[4] Shivani Guptasarma and Monroe D. Kennedy. Proact: An augmented reality testbed for intelligent prosthetic arms. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 33:354–365, 2025.

[5] Won Kyung Do, Bianca Aumann, Camille Chungyoun, and Monroe Kennedy. Inter-finger small object manipulation with densetact optical tactile sensor. *IEEE Robotics and Automation Letters*, 9(1):515–522, 2024.

[6] Eley Ng, Ziang Liu, and Monroe Kennedy. Diffusion co-policy for synergistic human-robot collaborative tasks. *IEEE Robotics and Automation Letters*, 9(1):215–222, 2024.

[7] Jose A. Solano-Castellanos, Won Kyung Do, and Monroe D. Kennedy. Embedded Object Detection and Mapping in Soft Materials Using Optical Tactile Sensing. *SN Computer Science*, 5(4):372, 2024.

[8] **Monroe Kennedy**, Karl Schmeckpeper, Dinesh Thakur, Jiang Chenfanfu, Vijay Kumar, and Kostas Daniilidis. Autonomous precision pouring from unknown containers. *IEEE Robotics and Automation Letters*, 4(3):2317–2324, 2019.

[9] Caio Mucchiani, **Monroe Kennedy**, Mark Yim, and Jun Seo. Object picking through in-hand manipulation using passive end-effectors with zero mobility. *IEEE Robotics and Automation Letters*, 3(2):1096–1103, April 2018.

[10] **Monroe Kennedy**, Dinesh Thakur, M Ani Hsieh, Subhrajit Bhattacharya, and Vijay Kumar. Optimal paths for polygonal robots in se (2). *Journal of Mechanisms and Robotics*, 10(2):021005, 2018.

[11] Edward Steager, Mahmut Selman Sakar, Magee Ceridwen, **Monroe Kennedy**, Anthony Cowley, and Vijay Kumar. Automated biomanipulation of single cells using magnetic microrobots. *The International Journal of Robotics Research*, 32(3):346–359, 2013.

Refereed Conference Articles

[1] Maulik Bhatt, HongHao Zhen, Monroe Kennedy, and Negar Mehr. Understanding and imitating human-robot motion with restricted visual fields. In *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 9932–9939, 2025.

[2] Timothy Chen, Aiden Swann, Javier Yu, Ola Shorinwa, Riku Murai, Monroe Kennedy, and Mac Schwager. A control barrier function for safe navigation with online gaussian splatting maps. In *2025 IEEE International Conference on Robotics and Automation (ICRA)*, pages 11758–11765, 2025.

[3] Ankush Kundan Dhawan, Camille Chungyoun, Karina Ting, and Monroe Kennedy. Dynamic layer detection of thin materials using densetact optical tactile sensors. In *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 6556–6562, 2025.

[4] Matthew Strong, Boshu Lei, Aiden Swann, Wen Jiang, Kostas Daniilidis, and Monroe Kennedy. Next best sense: Guiding vision and touch with fisherrf for 3d gaussian splatting. In *2025 IEEE International Conference on Robotics and Automation (ICRA)*, pages 3204–3210, 2025.

[5] Won Kyung Do, Ankush Kundan Dhawan, Mathilda Kitzmann, and Monroe Kennedy. Densetact-mini: An optical tactile sensor for grasping multi-scale objects from flat surfaces. In *2024 IEEE International Conference on Robotics and Automation (ICRA), (Best Paper Nomination)*, pages 6928–6934, 2024.

[6] Shivani Guptasarma, Brian B. Vuong, Allison M. Okamura, and Monroe Kennedy III. Facial haptic feedback for robotic prostheses. In *Converging Clinical and Engineering Research on Neurorehabilitation V*, pages 311–315, Cham, 2024. Springer Nature Switzerland.

[7] Ola Shorinwa, Johnathan Tucker, Aliyah Smith, Aiden Swann, Timothy Chen, Roya Firoozi, Monroe Kennedy, and Mac Schwager. Splat-mover: Multi-stage, open-vocabulary robotic manipulation via editable gaussian splatting. 2024.

[8] Aiden Swann, Matthew Strong, Won Kyung Do, Gadiel Sznaier Camps, Mac Schwager, and Monroe Kennedy. Touch-gs: Visual-tactile supervised 3d gaussian splatting. In *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 10511–10518, 2024.

[9] Won Kyung Do, Bianca Jurewicz, and Monroe Kennedy. Densetact 2.0: Optical tactile sensor for shape and force reconstruction. In *2023 IEEE International Conference on Robotics and Automation (ICRA)*, pages 12549–12555, 2023.

[10] Eley Ng, Ziang Liu, and Monroe Kennedy. It takes two: Learning to plan for human-robot cooperative carrying. In *2023 IEEE International Conference on Robotics and Automation (ICRA)*, pages 7526–7532, 2023.

[11] Weizhuo Wang, Michael Raitor, Steve Collins, C. Karen Liu, and Monroe Kennedy. Trajectory and sway prediction towards fall prevention. In *2023 IEEE International Conference on Robotics and Automation (ICRA)*, pages 10483–10489, 2023.

[12] Won Kyung Do and Monroe Kennedy. Densetact: Optical tactile sensor for dense shape reconstruction. In *2022 International Conference on Robotics and Automation (ICRA)*, pages 6188–6194, 2022.

[13] Albert H. Li, Philipp Wu, and Monroe Kennedy. Replay overshooting: Learning stochastic latent dynamics with the extended kalman filter. In *2021 IEEE International Conference on Robotics and Automation (ICRA)*, pages 852–858, 2021.

[14] Monroe Kennedy, Kendall Queen, Dinesh Thakur, Kostas Daniilidis, and Vijay Kumar. Precise dispensing of liquids using visual feedback. In *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 1260–1266, Sept 2017.

[15] Mabel Zhang, Monroe Kennedy, M. Ani Hsieh, and Kostas Daniilidis. A triangle histogram for object classification by tactile sensing. In *2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 4931–4938, Oct 2016.

[16] **Monroe Kennedy III**, Luis Guerrero, and Vijay Kumar. Decentralized algorithm for force distribution with applications to cooperative transport. In *ASME 2015 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, volume 5C: 39th Mechanisms and Robotics Conference of *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*. American Society of Mechanical Engineers, Aug 2015. V05CT08A013.

Editorials/Invited/Non-refereed/Short Conference Articles and Abstracts

[1] Shivani Guptasarma, Brian B. Vuong, Allison M. Okamura, and Monroe Kennedy III. Facial haptic feedback for robotic prostheses. In Jose L. Pons, Jesus Tornero, and Metin Akay, editors, *Converging Clinical and Engineering Research on Neurorehabilitation V*, pages 311–315, Cham, 2024. Springer Nature Switzerland.

[2] Monroe Kennedy. The role of collaborative robotics in assistive and rehabilitation applications. *Science Robotics*, 8(83):eadk6743, 2023.

[3] Eley Ng, Ziang Liu, and Monroe Kennedy. Learning action and state sampling distributions from offline data for human-robot collaboration. In *Workshop on Learning from Diverse, Offline Data*, 2022.

[4] Shivani Guptasarma and Monroe Kennedy III. Considerations for the Control Design of Augmentative Robots. In *IEEE International Conference on Intelligent Robots and Systems Workshop on Building and Evaluating Ethical Robotic Systems*, number 1, Prague, Czech Rep, 2021.

[5] Ayanna Howard and Monroe Kennedy III. Robots are not immune to bias and injustice. *Science Robotics*, 5(48), Nov 2020.

[6] Junwu Zhang and Monroe Kennedy. Recent development in human motion and gait prediction. *Workshop on Robot Retrospectives, Robot Science and Systems*, 2020.

[7] Monroe David Kennedy III. *Modeling and Control for Robotic Assistants: Single and Multi-Robot Manipulation.* Phd, University of Pennsylvania, jan 2019.

Professional Service

International Program, Editorial, and Review Committees

- Organizer for Bay Area Robotics Symposium (BARS) 2026
- Reviewer for NSF Human Centered Computing 2026
- Reviewer for IEEE International Conference on Intelligent Robots and Systems (IROS) 2014-2026
- Reviewer for IEEE Robotics and Automation Letters (RA-L) 2017 - 2025 (every year)
- Panel Reviewer for NSF ERC site visit 2026
- Reviewer for United States Veteran Affairs Grants 2025,2026
- Reviewer for NSF Career Panel 2025
- Associate Editor for IEEE International Conference on Robotics and Automation (ICRA) 2020,2022-2023,2025,2026
- Panelist for NSF CMMI 2025
- Reviewer for IEEE Sensors Journal 2025
- Reviewer for Conference on Robotic Learning (CoRL) 2025
- Reviewer for IEEE Transactions on Industrial Informatics 2025
- Accessibility & Inclusion Committee Co-Chair, IEEE International Conference on Robotics and Automation (ICRA) 2025
- NSF Grant Review Panelist 2024
- Reviewer for IEEE Transactions on Automation Science and Engineering 2024
- Reviewer for IEEE Transactions on Robotics 2024
- Reviewer for IEEE International Conference on Robotics and Automation (ICRA) 2020-2025
- Reviewer for IEEE Transactions on Instrumentation & Measurement 2023
- Conference Session Chair (Contact Modeling, Grippers, and other End-Effectors), IEEE ICRA 2022
- Reviewer for IEEE Transactions on Neural Systems and Rehabilitation Engineering 2022
- Workshop Program Committee (Building and Evaluating Ethical Robotics Systems), IEEE International Conference on Intelligent Robots and Systems (IROS) 2021
- Conference Session Chair (Automation: Machine Learning II), IEEE ICRA 2021
- Reviewer for Transactions on Human-Robot Interaction 2021
- Guest Editor for Field Robotics: *Robotics Collaborative Technology Alliance (RCTA)– Developing Autonomous Robotic Team Members for Unstructured Environments* 2020-2021
- Reviewer for International Journal of Robotics Research 2019
- Reviewer for IEEE International Conference on Automation Science and Engineering (CASE) 2018
- Reviewer for ASME International Design Engineering Technical Conferences 2017-2018

Administrative and Organizational Committees

- Black in Robotics (non-profit) co-founder, board member, National co-Director, and Bay Area Chapter co-Director 2020-present

University Service

Graduate Admissions Committee, Department of Mechanical Engineering (2019-present)
Knight-Hennessy Scholar Annual Candidate Interviewer, Stanford University (2020-2023)
Diversity, Equity and Inclusion Committee, Department of Mechanical Engineering (2020-2022)
Co-lead of Robotics and Autonomous Systems Area, SystemX Stanford University, (2020-present)

Professional Affiliations

- Member, American Society of Mechanical Engineers
- Member, Institution of Electrical and Electronic Engineers

Press Coverage and Media Appearances

- Scientific American - "Meet your future robot servants, caregivers and explorers"
- Why the Future Needs Robots with a Human Touch
- KUKA Innovation award Finalist 2018
- Exploration Earth 2050 "Bio-Mechanimals" (S1E1)
- Bloomberg Technology: "The End of Traffic: How the Smartest People in the World Are Fixing Your Commute"
- Xploration Nature Knows Best (S1E12)

Advising

Doctoral and Pre-doctoral Students

Ankush Dhawan, Ph.D. student, Stanford Mechanical Engineering, expected 2031
Judith Brown, Ph.D. student, Stanford Mechanical Engineering, expected 2031. NSF Graduate Fellow
Maisha Khanum, Ph.D. student, Stanford Mechanical Engineering, expected 2030. NSF Graduate Fellow
Shalika Neelaveni, Ph.D. student, Stanford Mechanical Engineering, expected 2030. Stanford Graduate Fellow
Max Burns, Ph.D. student, Stanford Mechanical Engineering, expected 2030. NSF Graduate Fellow, Stanford Graduate Fellow
Jinho So, Ph.D. student, Stanford Mechanical Engineering, expected 2030.
Matthew Strong, Ph.D. student, Stanford Computer Science, expected 2029. NSF Graduate Fellow
Aiden Swann, Ph.D. student, Stanford Mechanical Engineering, expected 2029. NSF Graduate Fellow
Aliyah Smith, Ph.D. student, Stanford Aeronautics & Astronautics, **Graduated 2026**. NSF Graduate Fellow.
Weizhuo (Ken) Wang, M.S. in Aeronautics & Astronautics, Stanford University, **Graduated 2026**.
Shivani Guptasarma, Ph.D. student, Stanford Mechanical Engineering, **Graduated 2026**. Knight-Hennessy Scholar, Wu Tsai Human Performance Fellow.
Won Kyung Do, Ph.D. student, Stanford Mechanical Engineering, **Graduated 2025**.
Eley Ng, Ph.D., Stanford Mechanical Engineering, **Graduated 2023**. NSF Graduate Fellow.

Masters Research Students

*=publication

Andrew Pasco, M.S. in Mechanical Engineering, Stanford, expected 2027
Belle Angkanapiwat, M.S. in Mechanical Engineering, Stanford, expected 2027
Felicity Huang, M.S. in Computer Science, Stanford, graduated 2026
Mathusha Rao, M.S. in Mechanical Engineering, Stanford, graduated 2026
Yuhao Huai, M.S. in Mechanical Engineering, Stanford, graduated 2026
Aarya Sumuk, M.S. in Mechanical Engineering, Stanford, graduated 2026
Nick Agathangelou, M.S. in Mechanical Engineering, Stanford, graduated 2026
Joonwon Kang, M.S. in Mechanical Engineering, Stanford, graduated 2026
Naixiang Gao, M.S. in Mechanical Engineering, Stanford, graduated 2026
Alex Qiu*, M.S. in Mechanical Engineering, Stanford, graduated 2026
Giuse Pham, M.S. in Mechanical Engineering, Stanford, graduated 2026
Jiaqi Shao, M.S. in Mechanical Engineering, Stanford, graduated 2026
Vakula Venkatesh, M.S. in Mechanical Engineering, Stanford, graduated 2026
Judith Brown, M.S. in Mechanical Engineering, Stanford, graduated 2026
Aditya Dutt, M.S. in Mechanical Engineering, Stanford, graduated 2025
Omoruyi Atekha, M.S. in Mechanical Engineering, Stanford, graduated 2025
David Ihim, M.S. in Mechanical Engineering, Stanford, graduated 2025
Sam Morstein*, M.S. in Mechanical Engineering, Stanford, graduated 2025
Yunxin Fan*, M.S. in Mechanical Engineering, Stanford, graduated 2025
Zhongchun Yu, M.S. in Mechanical Engineering, Stanford, graduated 2025
Camille Chungyoun*, M.S. in Mechanical Engineering, Stanford, graduated 2024
Rafael Sonderegger, M.S. in Mechanical Engineering, ETH Zurich, Fall 2023
HongHao Zhen*, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Heidi Kwong, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Karina Ting*, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Tejas Deo, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Jose Castellanos*, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Saksham Consul, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Dev Savla, M.S. in Mechanical Engineering, Stanford University, graduated 2024
Bianca Jurewicz**, M.S. in Mechanical Engineering, Stanford University, graduated 2023
Ziang Liu*, M.S. in Computer Science, Stanford University, graduated 2023
Blair Huang, M.S. in Mechanical Engineering, Stanford University, graduated 2023.
Albert Li*, M.S. in Mechanical Engineering, Stanford University, graduated 2021.
Gabriela Bravo Illanes, M.S. in Mechanical Engineering, Stanford University, graduated 2021.
Luciana Frazao, M.S. in Mechanical Engineering, Stanford University, graduated 2021.
Ewurama Nyarkoah Karikari, M.S. in Mechanical Engineering, Stanford University, graduated 2021.

Junwu Zhang*, M.S. in Mechanical Engineering, Stanford University, graduated 2021.
Alexander Maynard, M.S. in Aeronautics & Astronautics, Stanford University, graduated 2021.
Moromoke Adekanye, M.S. in Mechanical Engineering, Stanford University, graduated 2021.
Holly Dinkel, M.S. in Aeronautics & Astronautics, Stanford University, graduated 2020.
Manuel Retana, M.S. in Aeronautics & Astronautics, Stanford University, graduated 2020.
Richie Ling, M.S. in Mechanical Engineering, Stanford University, graduated 2020.

Undergraduate Students

Undergraduate Research is performed for course credit, pay (either through an REU supplement to an NSF grant or from the ME Department SURI program). This is a list of undergraduates who have performed research in the ARMLab: Ethan Le, Denzel Cofie, Gabriel Irazabal, Ayaan Chand, Benji Warburton, Kai Rayle, Ankush Kundan, Mathilda Kitzmann, Ahmed Muhammad, Angelina Zhang, Billy Gao, Ian Chen, Kai Rayle, Katelyn Chen, Beck Jurasius, James Kelly, Bryn Hughes, Rekha Ramanathan, Ashley Marie Lowber, Beck Jurasius,

Research Experience for Teachers (RET)

At Stanford University: (through the program Ignited education) Suporn Chenhansa from Ohlone College (Summer 2020, 2021)
At the University of Pennsylvania: (through NSF funded RET) David Devard (science teacher at the School District of Philadelphia) (Summer 2017). Elissa Goldberg School Librarian at School District of Philadelphia (Summer 2016, 2017).

Ph.D. Thesis Defense and Reading Committees

Thesis Defenses:

2019: Margaret Koehler (Stanford, ME)

2020: Jooyeun Ham (Stanford, ME)

2021: Alex Grubele (Stanford, ME), Raunak Bhattacharyya (Stanford, AA, dissertation chair), Vincent Chiu (Stanford, ME), Benoit Landry (Stanford, AA), Boris Ivanovic (Stanford, AA, dissertation chair), Kunal Menda (Stanford, AA), Gwen Bryan (Stanford, ME), Wilson Ruotolo (Stanford, ME), Adam Wiktor (Stanford, AA, dissertation chair), Xiaobai Ma (Stanford, AA, dissertation chair), Haruki Nishimura (Stanford, AA, dissertation chair), Joe Lorenzetti (Stanford, AA, dissertation chair), David Stonestrom (Stanford, AA), Shenli Yuan (Stanford, ME), Mingyu Wang (Stanford, ME).

2022: Apoorva Sharma (Stanford AA, dissertation chair), Adam Wilford Caccavale (Stanford, AA), Brian Axelrod (Stanford, CS, dissertation chair), Eric Jordan Gonzalez (Stanford, ME), Zhangjie Cao (Stanford, CS, dissertation chair), Taylor Howell (Stanford, ME), Zhangjie Cao (Stanford, CS, dissertation chair).

2023: Simon Pierre Marie Le Cleac'h (Stanford, ME), Catie Cuan (Stanford, ME), Brian Do (Stanford, ME), Marsie Trego Peterson (Stanford, ME), **Eley Ng** (Stanford, ME), Adyasha Mohanty (Stanford, AA, dissertation chair), Michael Andres Lin (Stanford, ME), Erez Krimsky (Stanford, ME), Oriana Claudia Peltzer (Stanford, AA), Nathaniel Agharese (Stanford, ME), Kenneth Hoffmann (Stanford, ME), Molly Zhang (Stanford, AA, dissertation chair), John Talbot (Stanford, ME).

2024: John Talbot (Stanford, ME), Somrita Banerjee (Stanford, AA), Derek Cutler Knowles (Stanford, CS), Sinruta Banerjee (Stanford, AA, dissertation chair), Michael Raitor (Stanford, ME), Elliot Weiss (Stanford, ME), Yifeng Jiang (Stanford, CS, dissertation chair), Mika Uy (Stanford, CS), Annie Xie (Stanford, CS), Amnahir Pena-Alcantara (Stanford MS&E, Chair), Joe Anthony Vincent (Stanford, AA), Joshua Ott (Stanford, AA), Trey Weber (Stanford, ME), Julia Di (Stanford, ME).

2025: Anil Yildiz (Stanford, AA, dissertation chair), Rianna Jitosho (Stanford, ME), Godson Osele (Stanford, ME), Anil Yildiz (Stanford, AA, dissertation chair). Jasmine Palmer (Stanford, ME), Dane Brouwer (Stanford, ME), **Won Kyung Do** (Stanford, ME), Ava Lakmazaheri (Stanford, ME), Nicholas Broadbent (Stanford, ME), Dylan Asmar (Stanford, AA), Marion Lepert (Stanford, AA), Fadhil Ginting (Stanford, AA), Amine Elhafsi (Stanford, AA), **Shivani Guptasarma** (Stanford, ME).

2026: Annie Chen (Stanford, CS), Yimeng Qin (Stanford, ME), Priya Sundaresan (Stanford, CS), Josiah Wong (Stanford, ME), **Weizhuo (Ken) Wang** (Stanford, ME), Albert Wu (Stanford, CS), Max Sokolich (University of Delaware), Boyeon Kim (Stanford, CS), Haochen Shi (Stanford, CS), **Aliyah Smith** (Stanford, AA), Adrian Piedra (Stanford, ME), Chinmay Devmalya (Stanford, ME), Jennifer Grannen (Stanford, CS).

Reading Committees: Elliot Weiss (Stanford, ME), Adrian Piedra (Stanford, CS), Marsie Trego Peterson (Stanford, ME), Michael Andres Lin (Stanford, ME), Adam Wilford Caccavale (Stanford, AA), Wilson Ruotolo (Stanford, ME), Eley Ng (Stanford, ME), Gwen Bryan (Stanford, ME), Nathan Spielberg (Stanford, ME), Eric Jordan Gonzalez (Stanford, ME), Benoit Landry (Stanford, Aero-Astro), John Talbot (Stanford, ME), Shenli Yuan (Stanford, ME), Alex Grubele (Stanford, ME), Adam Caccavale (Stanford, AA), Michael Andres Lin (Stanford, ME), Max

Sokolich (University of Delaware, ME), Simon Pierre Marie Le Cleac'h (Stanford, ME), Catie Cuan (Stanford, ME), Zhangjie Cao (Stanford, CS), Trevor Halsted (Stanford, AA, ME co-advisor), Nathaniel Agharese (Stanford, ME), Jasmin Palmer (Stanford, ME), William Chong (Stanford, ME), Trey Weber (Stanford, ME), Julie Di (Stanford, ME), Marion Lepert (Stanford, ME), Dylan Mitchell Asmar (Stanford, AA), Chinmay Devmalya (Stanford ME), Jasmine Palmer (Stanford, ME), Godson Osele (Stanford, ME), Nicholas Drake Broadbent (Stanford, ME), Adrian Piedra (Stanford, CS), Yimeng Qin (Stanford ME), Won Kyung Do (Stanford, ME), Daniel Morton (Stanford, ME), Weizhuo (Ken) Wang (Stanford, ME), Max Sokolich (University of Delaware), Takara Truong (Stanford, CS), Shivani Guptasarma (Stanford, ME), Aliyah Smith (Stanford, AA).

Instruction and Course Development

ENGR 15: Dynamics The application of Newton's Laws to solve 2-D and 3-D static and dynamic problems, particle and rigid body dynamics, free-body diagrams, and equations of motion, with application to mechanical, biomechanical, and aerospace systems. Computer numerical solution and dynamic response. *Stanford University: Autumn 2020, 2021, 2023, 2024; Spring 2026. Approximately 90 students per year.*

ME 326: Collaborative Robotics This course focuses on how robots can be effective teammates with other robots and human partners. Concepts and tools will be reviewed to characterize task objectives, robot perception and control, teammate behavioral modeling, inter-agent communication, and team consensus. We will consider the application of these tools to robot collaborators, wearable robotics, and the latest applications in the relevant literature. This project-based graduate course implements algorithms in either Python or C++. Recommended: Introductory course in machine learning. *Stanford University: Winter 2022, 2023, 2024, 2025, 2026. Approximately 50 students students per year*

ME 314: Robotic Dexterity This course covers fundamental principles of robotic dexterous manipulation, including kinematics, manipulator and gripper control, motion planning, contact modeling, and grasp stability. It explores robotic perception (vision and tactile) and advanced machine learning techniques (reinforcement learning and learning from demonstration). Students will apply these concepts in a hands-on group project using robotic manipulators for complex tasks. Homework assignments with both analytical and coding components will reinforce the concepts learned in class. Students should feel comfortable in Python and Linux (dual booting on a personal computer may be necessary for some assignments). *Stanford University: Spring 2025. Approximately 19 students per year.*

ME 334: Advanced Dynamics Modeling and analysis of dynamical systems. This class will cover reference frames and coordinate systems, kinematics and constraints, mass distribution, virtual work, D'Alembert's principle, Lagrange and Hamiltonian equations of motion. We will then consider select topics in controls including: dynamical system stability, feedback linearization, system observability and controllability, and system identification methods. Students will learn and apply these concepts through homework and projects that involve the simulation of dynamical systems. *Stanford University: Spring 2020, 2021, 2022, 2023, 2024. Approximately 18 students per year.*

Invited Presentations

1. (Keynote) Infineon I-Tech 2026 Innovation Conference, April 22, 2026
2. Berkeley EMBER Seminar, April 8, 2026
3. Santa Clara University ECEN 200 Graduate Engineering Seminar Series, February 20, 2026
4. Gordon Research Conference Embodied Intelligence in Robots and Animals, January 12, 2026
5. Stanford Robotics Seminar November 21, 2025
6. Bay Area Robotics Symposium, Stanford, CA, November 14, 2025
7. Lehigh University Mechanical Engineering Seminar, May 2, 2025.
8. Caltech University, Conference for Emerging Black Academics in STEM (CEBAS), April 4, 2025
9. Amazon Robotics Research Symposium, October 25, 2024
10. Precognition Workshop, IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2024), June 18, 2024
11. (Keynote) AWARE-AI NSF Research Traineeship Program Winter Retreat, Rochester Institute of Technology, January 18, 2024
12. Princeton Mechanical and Aerospace Engineering (MAE) Seminar, Princeton, NJ, November 3, 2023
13. Bay Area Robotics Symposium, Stanford, CA, October 27, 2023
14. Society of Engineering Science 2023 Annual Technical Meeting, Soft Robotics Symposium, Minneapolis, MN, October 8, 2023
15. (Keynote) Amazon Science and Technology Summit, San Francisco CA, May 17, 2023

16. Berkeley Institute of Design (BiD) Seminar, Berkeley CA, April 26, 2023
17. EI Seminar at Massachusetts Institute of Technology (MIT), Boston MA, April 6, 2023
18. Robotics Seminar at Carnegie Mellon University, Pittsburgh PA, March 24, 2023
19. Robotics Seminar at West Virginia University, Morgantown WV, March 23, 2023
20. RCMAR 2023 Annual Meeting, (virtual), March 23, 2023
21. Bay Area Robotics Symposium, Berkeley, CA November 4, 2022
22. Robotics Seminar at Oregon State University, Corvallis OR, October 28, 2022
23. Institute for Experiential Robotics at Northeastern University Seminar Series, Boston, MA, October 19, 2022
24. (Guest Lecture) Harnessing AI for Breakthrough Innovation and Strategic Impact, Stanford, CA, July 19, 2022
25. (Keynote) Learning for Dynamics & Control Conference, Stanford, CA, June 24, 2022
26. Stanford Robotics Seminar, Stanford, CA, February 25, 2022
27. (Guest Lecture) SystemX/EE310, Stanford, CA, February 24, 2022
28. (Guest Lecture) Stanford Ignite, Stanford, CA, February 15, 2022
29. (Guest Lecture) Perspectives in Assistive Technology, Stanford, CA, February 10, 2022
30. CARS 2021 Annual Meeting, Stanford, CA, November 17, 2021
31. SystemX November Conference, Stanford, CA, November 11, 2021
32. Bay Area Robotics Symposium, Stanford, CA, October 29, 2021
33. University of Southern California CPS Seminar, October 6, 2021
34. ASME IDETC-CIE Special Early Career Session, August 17, 2021
35. GRASP Student Faculty Industry (SFI) Seminar Series, Philadelphia, PA, March 17, 2021
36. George Mason University Mechanical Engineering Department Seminar, Fairfax, VA, March 5, 2021
37. Human-Centered Artificial Intelligence (HAI) Weekly Seminar, Stanford, CA, February 17, 2021
38. Berkeley DREAM/CPAR Seminar, Berkeley, CA, February 15, 2021
39. Human-Centered Interaction (HCI) Seminar, Stanford, CA, January 29, 2021
40. Bay Area Robotics Symposium, Stanford, CA, November 20, 2020
41. CARS 2020 Annual Meeting, Stanford, CA, November 11, 2020
42. SystemX November Conference, Stanford, CA, November 10, 2020
43. eWEAR Symposium, Stanford, CA, September 10, 2020
44. Bay Area Robotics Symposium, Berkeley, CA, November 15, 2019

Technical Skills

- Collaborative Robotics, Robotic Autonomy, Machine Learning, Computer Vision, Motion Planning, Dynamics and Controls Analysis, Numerical Optimization.
- *Programming Languages:* Python, C++ , Matlab
- *Applications:* TensorFlow, Pytorch, ROS, OpenCV, Solid Works, Eigen, Gurobi, LaTeX
- *Operating Systems:* Linux/Unix system, Robot Operating System (ROS)
- *Robots:* Kinova Gen3, Panda Franka Emika Manipulator, Allegro Hand, Fetch Mobile Manipulator, LocoBot, Rethink Robotics Baxter and Sawyer, Locobot, KUKA iiwa and YouBot, Scarab Differential Drive.