

Nima Fazeli

Associate Professor of Robotics

2150 Robotics Building, 2505 Hayward St., Ann Arbor, MI, USA

nfz@umich.edu • www.mmintlalab.com



Professional Appointments

University of Michigan:

2026 – Present	Associate Professor, Robotics Department
2026 – Present	Associate Professor, Electrical Engineering and Computer Science
2026 – Present	Associate Professor, Mechanical Engineering Department
2022 – 2026	Assistant Professor, Robotics Department
2024 – 2026	Assistant Professor, Electrical Engineering and Computer Science
2020 – 2026	Assistant Professor, Mechanical Engineering Department

Amazon:

2025 – Present	Amazon Scholar (Robotics)
----------------	---------------------------

Education

2020	Postdoc, MIT (Advised by Prof. Alberto Rodriguez)
2019	PhD, MIT Mechanical Engineering (Advised by Prof. Alberto Rodriguez)
2014	MSc, UMD Mechanical Engineering (Advised by Prof. Jin-Oh Hahn)
2012	MSc, University of Alberta, Transferred to UMD to complete MSc
2011	BSc, Amirkabir University of Technology, Mechanical Engineering

Awards and Honors

Academic Awards:

2025	Early Career Keynote – Conference on Robot Learning (CoRL)
2024	NSF CAREER Award
2022	Agilent Early Career Professor Award Finalist
2022	Amazon Research Award – Robotics
2021	Google Faculty Research Award
2014	Rohsenow Fellowship – MIT
2013	Academic Excellence Award – UMD

Paper Awards:

2024	UM AI Symposium 2024 Best Paper – “ <i>RACER</i> ”
2023	RSS Best Student Paper Finalist – “ <i>MultiScope</i> ”
2018	IROS Best Cognitive Robotics Paper – “ <i>Augmenting Physical Simulators ..</i> ”
2017	Best Systems Paper Amazon Robotics Awards – “ <i>Robotic Pick-and-Place of ...</i> ”
2017	ISRR 2017 Doctoral Consortium Award to “ <i>Fundamental Limitations in ...</i> ”
2016	IROS Best Student Paper Finalist – “ <i>More Than a Million Ways...</i> ”
2015	ISRR 2015 Paper Selected for Special Issue of IJRR Awarded to “ <i>Identifiability Analysis of Planar Rigid-Body Frictional Contact</i> ”
2012	DSCC Best Student Paper Finalist – “ <i>Active Non-Intrusive System ...</i> ”

Competitions and Travel Awards:

2017	Sontheimer Travel Award – MIT Mechanical Engineering
2017	1st Place – Amazon Robotics Challenge Stowing Task
2016	3rd and 4th Place – Amazon Picking Challenge
2015	2nd Place – Amazon Picking Challenge
2012	Dynamic Systems and Controls Conference (DSCC) Travel Grant Award

Leadership and Service Activities

University of Michigan:

2025 – 2026	Robotics and CSE Search Committee
2022 – 2025	Robotics Department Seminar Committee Chair

2020 – 2025	Robotics Department Graduate Committee
2024 – present	Robotics Community and Outreach Committee Member
2021 – 2022	Robotics Community and Outreach Committee Chair
2020 – 2024	Mechanical Engineering Seminar Series Committee

Robotics Community:

2026 – Present	Associate Editor for Transactions on Robot Learning
2026	Senior Area Chair – CoRL
2026	Faculty Evaluator – RSS Pioneers Workshop
2023 - 2025	Area Chair – RSS
2023	Associate Editor – IJRR
2022 & 2024	Associate Editor – ICRA
2022 – Present	Orbital Reef Advisory Council
2020	RSS Workshop Organizer - “Good Citizens of Robotics”
2020	Program Committee - Conference on Robot Learning (CoRL)
2020	Associate Editor IROS
2016 & 2017	Organizing Committee of Robocon at MIT
2015	Assistant Organizer of the NSF National Robotics Initiative PI Meeting
2013	Co-chair of Sys. ID. and Therapeutic Control in Bio-Systems Session DSCC

Outreach:

2025	Touch Sensing and Processing Summer School - TU Dresden
2023	First Robotics Manipulation and Tactile Sensing Visit and Games
2021	UM - LSAMP Robotics Summer Camp
2021	Moorehouse College Mentorship
2015 – 2016	President of the Persian Student Association at MIT
2015 – 2016	Orientation Chair for Graduate Association of Mechanical Engineers at MIT

Review Service Awards:

2016	Elsevier Recognition Certificate: Computers in Biology and Medicine
2015	Elsevier Recognition Certificate: Biomedical Signal Processing and Control

Courses Teaching

University of Michigan – Lead Instructor:

2024 Annually	ROB 215 - Robot Dynamics and Simulation
2022 Annually	ROB 498 - Robot Learning for Planning and Controls
2020 Annually	ROB 498 - Introduction to Robotic Manipulation
2021/2022	MECHENG 360 - Modeling, Analysis, and Control of Dynamical Systems

Publications

Under Submission:

- U1 X. Wang, I.-H. Huang, X. Xu, X. Yi, N. Fazeli, and X. Huang, “GelSlim 5.0: Unifying vision and touch with a single fingertip camera,” *arXiv preprint arXiv:2610.31334*, 2026
- U2 Y. Luo, W. He, Y. Dai, H. Nam, H. Fu, J. Chai, N. Fazeli, and J. J. Park, “PhysiCalWorld: In-context physics calibration for world models,” *arXiv preprint arXiv:2610.30125*, 2026
- U3 C. Mc Gartoll, A. Dang, P. Thangeda, A. Gupta, C. Higuera, N. Fazeli, M. Mukadam, and M. Nambi, “Whole-body dexterity,” *arXiv preprint arXiv:2610.22184*, 2026
- U4 K. Nazari, L. Li, H. Fang, N. Fazeli, Z. Li, F. Iida, and T. G. Thuruthel, “Tactile-guided robot learning: From representation learning to foundation models,” *arXiv preprint arXiv:2610.20134*, 2026
- U5 A. Dang, A. Flores Alvarez, Y.-M. Chen, C. Mc Gartoll, H. Sun, A. Ames, N. Fazeli, and M. Nambi, “HULK: Learning whole-body forceful loco-manipulation for humanoids,” *arXiv preprint arXiv:2610.08970*, 2026

- U6 J. Li, H. Tabatabaee, K. Yu, Y. Sun, C.-H. Kuo, R. Martín-Martín, N. Fazeli, X. A. Wu, and X. Cheng, “ReDex: Repairing sim-to-real dexterous policies by finger-level compliant interaction,” *arXiv preprint arXiv:2610.07525*, 2026
- U7 M. Van der Merwe, M. L. Shehab, J. Lee, Y. Wi, Y. Dai, D. Berenson, and N. Fazeli, “TAP-VLA: Tactile annotation prompting for vision language action models,” *arXiv preprint arXiv:2606.29089*, 2026
- U8 F. Yang, Y. Wi, J. Yu, N. Fazeli, and D. Berenson, “Tactile sim2real without tactile simulation via bottlenecked latent reconstruction,” *IEEE Robotics and Automation Letters (RA-L)*, 2026
- U9 X. Yi, Y. Xing, Z. Manchester, and N. Fazeli, “Sound of touch: Active acoustic tactile sensing via string vibrations,” *IEEE Robotics and Automation Letters (RA-L)*, 2026
- U10 Y. Wi, M. Iyengar, N. Fazeli, F. Ramos, D. Fox, Y.-W. Chao, and A. Murali, “ContactMap: Sim2real contact retargeting for generalizable manipulation contact planning,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2026
- U11 W. van den Bogert, G. Linkowski, and N. Fazeli, “GrOMP: Grasped object manifold projection for multimodal imitation learning of manipulation,” *arXiv preprint arXiv:2512.03347*, 2025
- U12 S. Mozaffari, D. Ruan, W. v. d. Bogert, N. Fazeli, S. Adriaenssens, and A. Adel, “Learning diffusion policies for robotic manipulation of timber joinery under fabrication uncertainty,” *Automation in Construction*, 2025

Refereed Conference Proceedings:

- C1 J. Lee, J. Yin, A. Rana, N. Blauch, O. Zhang, S. Mady, M. Bhardwaj, N. Fazeli, N. Ratliff, K. Van Wyk, and A. Handa, “ADEPT: Accelerating dexterity via pre-training and post-training using reinforcement learning,” *Conference on Robot Learning (CoRL)*, 2026
- C2 W. Tong, J. Mi, X. Yi, N. Fazeli, and X. Huang, “Scalable open-source visuotactile sensor for 6-axis contact wrench estimation in tensegrity robots,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2026
- C3 A. Dang, J. Lee, M. Mukadam, X. A. Wu, B. Bucher, M. Nambi, and N. Fazeli, “HydroShear: Hydroelastic shear simulation for tactile sim-to-real reinforcement learning,” *Robotics: Science and Systems (RSS)*, 2026
- C4 Y. Wi, J. Yin, E. Xiang, A. Sharma, J. Malik, M. Mukadam, N. Fazeli, and T. Hellebrekers, “TactAlign: Human-to-robot policy transfer via tactile alignment,” *Robotics: Science and Systems (RSS)*, 2026
- C5 Y. Dai, H. Fu, J. Lee, Y. Liu, H. Zhang, J. Yang, C. Finn, N. Fazeli, and J. Chai, “RoboMME: Benchmarking and understanding memory for robotic generalist policies,” *International Conference on Machine Learning (ICML)*, 2026
- C6 X. Yi, J. Lee, and N. Fazeli, “Visual-auditory extrinsic contact estimation,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2026
- C7 W. van den Bogert, M. Iyengar, and N. Fazeli, “Built different: Tactile perception to overcome cross-embodiment capability differences in collaborative manipulation,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2026
- C8 C. Chen, Q. Yang, X. Xu, N. Fazeli, and O. Andersson, “ViSA-Flow: Accelerating robot skill learning via large-scale video semantic action flow,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2026
- C9 S. Rodriguez, Y. Dou, M. Oller, A. Owens, and N. Fazeli, “Cross-sensor touch generation,” *Conference on Robot Learning (CoRL)*, 2025

- C10 Y. Dai, J. Lee, Y. Zhang, Z. Ma, J. Yang, A. Zadeh, C. Li, N. Fazeli, and J. Chai, “AimBot: A simple auxiliary visual cue to enhance spatial awareness of visuomotor policies,” *Conference on Robot Learning (CoRL)*, 2025
- C11 J. Lee and N. Fazeli, “ViTaSCOPE: Visuo-tactile implicit representation for in-hand pose and extrinsic contact estimation,” *Robotics: Science and Systems (RSS)*, 2025
- C12 X. Yi and N. Fazeli, “Vib2Move: In-hand object reconfiguration via fingertip micro-vibrations,” *Robotics: Science and Systems (RSS)*, 2025
- C13 M. Oller, A. Dang, and N. Fazeli, “Hydrosoft: Non-holonomic hydroelastic models for compliant tactile manipulation,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025
- C14 Y. Dai, J. Lee, N. Fazeli, and J. Chai, “RACER: Rich language-guided failure recovery policies for imitation learning,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025
- C15 B. Wang, N. Sridhar, C. Feng, M. Van der Merwe, A. Fishman, N. Fazeli, and J. J. Park, “This&That: Language-gesture controlled video generation for robot planning,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025
- C16 S. Rodriguez, Y. Dou, W. van den Bogert, M. Oller, K. So, A. Owens, and N. Fazeli, “Contrastive touch-to-touch pretraining,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025
- C17 S. Li, S. Rodriguez, Y. Dou, A. Owens, and N. Fazeli, “Tactile functasets: Neural implicit representations of tactile datasets,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025
- C18 Y. Wi, J. Lee, M. Oller, and N. Fazeli, “Neural inverse source problems,” *8th Conference on Robot Learning*, 2024
- C19 M. Oller, D. Berenson, and N. Fazeli, “Tactile-driven non-prehensile object manipulation via extrinsic contact mode control,” *Robotics: Science and Systems (RSS)*, 2024
- C20 M. Oller, D. Berenson, and N. Fazeli, “TactileVAD: Geometric aliasing-aware dynamics for high-resolution tactile control,” in *7th Annual Conference on Robot Learning*, 2023
- C21 Y. Wi, M. Van der Merwe, P. Florence, A. Zeng, and N. Fazeli, “CALAMARI: Contact-Aware and Language conditioned spatial Action MApping for contact-RIch manipulation,” in *7th Annual Conference on Robot Learning*, 2023
- C22 X. Yi and N. Fazeli, “Precise object sliding with top contact via asymmetric dual limit surfaces,” *Robotics: Science and Systems (RSS)*, 2023
- C23 M. Van der Merwe, Y. Wi, D. Berenson, and N. Fazeli, “Integrated object deformation and contact patch estimation from visuo-tactile feedback,” *Robotics: Science and Systems (RSS)*, 2023
- C24 A. Sipos and N. Fazeli, “MultiSCOPE: Disambiguating in-hand object poses with proprioception and tactile feedback,” *Robotics: Science and Systems (RSS)*, 2023, **Best Student Paper Finalist**
- C25 S. Zhong, N. Fazeli, and D. Berenson, “CHSEL: Producing diverse plausible pose estimates from contact and free space data,” *Robotics: Science and Systems (RSS)*, 2023
- C26 N. A. Dvorak, X. Yi, N. Fazeli, and P.-C. Ku, “Characterizations of GaN nano-LED-based tactile sensors for robotics applications,” in *Gallium Nitride Materials and Devices XVIII*, SPIE, 2023

- C27 Y. Wi, A. Zeng, P. Florence, and N. Fazeli, “VIRDO++: Real-world, visuo-tactile dynamics and perception of deformable objects,” *Conference on Robot Learning*, 2022
- C28 M. Oller, M. Planas, D. Berenson, and N. Fazeli, “Manipulation via membranes: High-resolution and highly deformable tactile sensing and control,” *Conference on Robot Learning*, 2022
- C29 M. van der Merwe, D. Berenson, and N. Fazeli, “Learning the dynamics of compliant tool-environment interaction for visuo-tactile contact servoing,” *Conference on Robot Learning*, 2022
- C30 Y. Chen, A. Sipos, M. van der Merwe, and N. Fazeli, “Visuo-tactile transformers for manipulation,” *Conference on Robot Learning*, 2022
- C31 A. Sipos and N. Fazeli, “Simultaneous contact location and object pose estimation using proprioception and tactile feedback,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 3233–3240, 2022
- C32 Y. Wi, P. Florence, A. Zeng, and N. Fazeli, “VIRDO: Visio-tactile implicit representations of deformable objects,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2022
- C33 N. Fazeli, A. Ajay, and A. Rodriguez, “Long-horizon prediction and uncertainty propagation with residual point contact learners,” in *2020 IEEE International Conference on Robotics and Automation (ICRA)*, pp. 7898–7904, IEEE, 2020
- C34 A. Ajay, M. Bauza, J. Wu, N. Fazeli, J. B. Tenenbaum, A. Rodriguez, and L. P. Kaelbling, “Combining Physical Simulators and Object-Based Networks for Control,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2019
- C35 A. Ajay, J. Wu, N. Fazeli, M. Bauza, L. P. Kaelbling, J. B. Tenenbaum, and A. Rodriguez, “Augmenting Physical Simulators with Stochastic Neural Networks: Case Study of Planar Pushing and Bouncing,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2018, **Best Cognitive Robotics Paper**
- C36 A. Zeng *et al.*, “Robotic Pick-and-Place of Novel Objects in Clutter with Multi-affordance Grasping and Cross-domain Image Matching,” *IEEE International Conference on Robotics and Automation (ICRA)*, pp. 1–8, 2018, **Best Systems Paper – Amazon Manipulation Awards**
- C37 N. Fazeli, S. Zapolsky, E. Drumwright, and A. Rodriguez, “Learning Data-efficient Rigid-body Contact Models: Case Study of Planar Impact,” *Conference on Robotic Learning (CoRL)*, vol. 78, 2017
- C38 N. Fazeli, S. Zapolsky, E. Drumwright, and A. Rodriguez, “Fundamental Limitations in Performance and Interpretability of Common Planar Rigid-Body Contact Models,” *International Symposium of Robotic Research (ISRR)*, 2017
- C39 N. Fazeli, E. Donlon, E. Drumwright, and A. Rodriguez, “Empirical evaluation of common contact models for planar impact,” *IEEE International Conference on Robotics and Automation (ICRA)*, pp. 3418–3425, 2017
- C40 K.-T. Yu, M. Bauza, N. Fazeli, and A. Rodriguez, “More than a Million Ways to be Pushed. A High-Fidelity Experimental Data Set of Planar Pushing,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2016, (Best Paper Finalist)
- C41 K.-T. Yu, N. Fazeli, N. Chavan-Dafle, O. Taylor, E. Donlon, G. D. Lankenau, and A. Rodriguez, “A Summary of Team MIT’s Approach to the Amazon Picking Challenge 2015,” *arXiv preprint arXiv:1604.03639*, 2016
- C42 N. Fazeli, R. Tedrake, and A. Rodriguez, “Identifiability Analysis of Planar Rigid-body Frictional Contact,” *Robotics Research/International Symposium of Robotic Research 2015*, pp. 665–682, 2015, **Selected for Special Issue of IJRR**

- C43 M. Abdollahzade, C.-S. Kim, N. Fazeli, J.-O. Hahn, M. S. McMurtry, and B. Finegan, “Lossy Transmission Line Modeling of of Arterial Tree in Time Domain,” *36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 2014
- C44 M. Rashedi, N. Fazeli, A. Chappell, S. Wang, R. MacArthur, M. S. McMurtry, B. Finegan, and J.-O. Hahn, “Modeling and System Identification of Arterial Hemodynamics in Humans,” *ASME Dynamic Systems and Control Conference (DSCC)*, 2013
- C45 N. Fazeli and J.-O. Hahn, “Active Non-Intrusive System Identification for Cardiovascular Monitoring: Part II Development of System Identification Algorithm,” *ASME Dynamic Systems and Control Conference (DSCC)*, 2013
- C46 N. Fazeli, C.-S. Kim, and J.-O. Hahn, “Non-invasive Estimation of Central Blood Pressure Waveform using a Dual Diametric Cuff System: a Preliminary Study,” *ASME Conference on Frontiers in Medical Devices: Applications of Computer Modeling and Simulation*, 2013
- C47 N. Fazeli, C. S. Kim, and J.-O. Hahn, “Quantification of Wave Reflection in the Arterial Tree via Diametric Blood Pressure Waveform Measurement,” *American Control Conference (ACC)*, 2013, 2013
- C48 N. Fazeli, M. Rashedi, A. Chappell, S. Wang, R. MacArthur, M. S. McMurtry, B. Finegan, and J.-O. Hahn, “Subject-specific Estimation of Aortic Blood Pressure via System Identification: Preliminary in-human Experimental Study,” *American Control Conference (ACC)*, 2013, pp. 740–745, 2013
- C49 N. Fazeli, H.-C. Kim, and J.-O. Hahn, “Active Non-Intrusive System Identification for Cardiovascular Monitoring: Part I—Excitation and Measurement Protocol Design,” *ASME Dynamic Systems and Control Conference (DSCC)*, pp. 543–551, 2012, **Best Paper Finalist**

Refereed Journal Articles:

- J1 M. Van der Merwe, K. Ota, D. Berenson, N. Fazeli, and D. K. Jha, “Simultaneous extrinsic contact and in-hand pose estimation via distributed tactile sensing,” *IEEE Robotics and Automation Letters*, vol. 11, no. 3, pp. 2394–2401, 2026
- J2 S. Zhong, N. Fazeli, and D. Berenson, “RUMI: Rummaging using mutual information,” *IEEE Transactions on Robotics*, 2025
- J3 J. Lorenz, M. Hildner, W. van den Bogert, B. Zhu, S. Yee, N. Fazeli, and A. J. Shih, “Modeling of the high-viscosity fluid transient flow for material deposition in direct ink writing,” *Additive Manufacturing*, vol. 109, p. 104836, 2025
- J4 M. Van der Merwe, M. Oller, D. Berenson, and N. Fazeli, “Estimating deformable-rigid contact interactions for a deformable tool via learning and model-based optimization,” *IEEE Robotics and Automation Letters (RA-L)*, 2025
- J5 A. Sipos and N. Fazeli, “MultiSCOPE: Disambiguating in-hand object poses with proprioception and sequential interactions,” *The International Journal of Robotics Research (IJRR)*, 2025
- J6 X. Yi, A. Dang, and N. Fazeli, “Dual asymmetric limit surfaces and their applications to planar manipulation,” *Autonomous Robots*, 2024
- J7 W. Van den Bogert, J. Lorenz, X. Yi, A. Shih, and N. Fazeli, “Lumped-parameter modeling and control for robotic high-viscosity fluid deposition,” *IEEE Robotics and Automation Letters (RA-L)*, 2023
- J8 N. Dvořák, N. Fazeli, and P.-C. Ku, “Direct shear stress mapping using a gallium nitride led-based tactile sensor,” *Micromachines*, vol. 14, no. 5, p. 916, 2023

- J9 S. Zhong, N. Fazeli, and D. Berenson, “Soft tracking using contacts for cluttered objects to perform blind object retrieval,” *IEEE Robotics and Automation Letters*, 2022
- J10 S. Zhong, Z. Zhang, N. Fazeli, and D. Berenson, “TAMPC: A controller for escaping traps in novel environments,” *IEEE Robotics and Automation Letters*, 2021
- J11 N. Fazeli, M. Oller, J. Wu, Z. Wu, J. B. Tenenbaum, and A. Rodriguez, “See, feel, act: Hierarchical learning for complex manipulation skills with multisensory fusion,” *Science Robotics*, vol. 4, no. 26, 2019
- J12 A. Zeng *et al.*, “Robotic Pick-and-Place of Novel Objects in Clutter with Multi-Affordance Grasping and Cross-Domain Image Matching,” *International Journal of Robotic Research (IJRR)*, 2018
- J13 N. Fazeli, R. Kolbert, R. Tedrake, and A. Rodriguez, “Parameter and Contact Force Estimation of Planar Rigid-bodies Undergoing Frictional Contact,” *The International Journal of Robotics Research (IJRR)*, vol. 36, no. 13-14, pp. 1437–1454, 2017
- J14 C.-S. Kim, N. Fazeli, M. S. McMurtry, B. A. Finegan, and J.-O. Hahn, “Quantification of Wave Reflection using Peripheral Blood Pressure Waveforms,” *IEEE Journal of Biomedical and Health Informatics*, vol. 19, no. 1, pp. 309–316, 2015
- J15 C.-S. Kim, N. Fazeli, and J.-O. Hahn, “Data-Driven Modeling of Pharmacological Systems using Endpoint Information Fusion,” *Computers in Biology and Medicine*, vol. 61, pp. 36 – 47, 2015
- J16 M. Abdollahzade, C.-S. Kim, N. Fazeli, B. A. Finegan, M. S. McMurtry, and J.-O. Hahn, “Data-driven Lossy Tube-load Modeling of Arterial Tree: In-human Study,” *Journal of Biomechanical Engineering*, vol. 136, no. 10, p. 101011, 2014
- J17 N. Fazeli, C.-S. Kim, M. Rashedi, A. Chappell, S. Wang, R. MacArthur, M. S. McMurtry, B. Finegan, and J.-O. Hahn, “Subject-specific Estimation of Central Aortic Blood Pressure via System Identification: Preliminary In-human Experimental Study,” *Medical & Biological Engineering & Computing*, vol. 52, no. 10, pp. 895–904, 2014
- J18 M. Rashedi, N. Fazeli, A. Chappell, S. Wang, R. MacArthur, M. S. McMurtry, B. A. Finegan, and J.-O. Hahn, “Comparative Study on Tube-load Modeling of Arterial Hemodynamics in Humans,” *Journal of Biomechanical Engineering*, vol. 135, no. 3, p. 031005, 2013
- J19 N. Fazeli and J.-O. Hahn, “Estimation of Cardiac Output and Peripheral Resistance using Square-wave Approximated Aortic Flow Signal,” *Frontiers in Physiology*, vol. 3, p. 298, 2012

Workshop Papers:

- W1 A. Saha, Z. H. Gan, J. Guo, J. Skwyrsk, J. Acheampong, A. Arapin, C. Ku, Y. Hu, N. Fazeli, and B. Bucher, “PhyGS: Physically-grounded controllable scene generation,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) – Workshop on Multi-Agent Embodied Intelligent Systems*, 2026

Preprints and Reports (Not Refereed):

- P1 B. Patil, S. Belt, J. Lee, N. Fazeli, and B. Bucher, “Using temperature sampling to effectively train robot learning policies on imbalanced datasets,” *arXiv preprint arXiv:2510.19373*, 2025
- P2 A. Sipos, W. van den Bogert, and N. Fazeli, “GelSlim 4.0: Focusing on touch and reproducibility,” *arXiv preprint arXiv:2409.19770*, 2024
- P3 J. A. Eyzaguirre, M. Oller, and N. Fazeli, “Tactile neural de-rendering,” *arXiv preprint arXiv:2409.13923*, 2024
- P4 A. Dang, J. Lorenz, X. Yi, and N. Fazeli, “Bimanual in-hand manipulation using dual limit surfaces,” *arXiv preprint arXiv:2409.14698*, 2024

Patents:

- 1 Bizhong Zhu, Midland, MI (US); Stanley Yee, Midland, MI (US); Albert Shih, Ann Arbor, MI (US); Nima Fazeli, Ann Arbor, MI (US); James Lorenz, Ann Arbor, MI (US); William Van Den Bogert, "Additive Manufacturing Guide", Application No: 86123-US-PSP

Invited Talks:

- T1 N. Fazeli, "Why is manipulation so damn hard? dexterous manipulation with vision and touch," *CoRL – Early Career Keynote*, 2025
- T2 N. Fazeli, "Why is manipulation so damn hard? dexterous manipulation with vision and touch," *Amazon Robotics Symposium*, 2025
- T3 N. Fazeli, "Dexterous robots in the age of foundation models: Rich language, gesture, and touch," *ICRA - Foundation Models and Neuro-Symbolic AI for Robotics*, 2025
- T4 N. Fazeli, "Towards dexterity in space: Soft tactile perception and controls," *ICRA - Enhancing Dexterity in Space Environments: The Potential of Soft Robotic Systems*, 2025
- T5 N. Fazeli, "Sensing the unseen: Dexterous tool manipulation through touch and vision," *MIT Worldwide Robotics*, 2025
- T6 N. Fazeli, "Sensing the unseen: Dexterous tool manipulation through touch and vision," *CMU Robotics Seminar Series*, 2025
- T7 N. Fazeli, "Sensing the unseen: Dexterous tool manipulation through touch and vision," *North-eastern Robotics Seminars*, 2025
- T8 N. Fazeli, "Sensing the unseen: Dexterous tool manipulation through touch and vision," *Amazon AI Symposium*, 2025
- T9 N. Fazeli, "Sensing the unseen: Dexterous tool manipulation through touch and vision," *University of Michigan, Control Seminar Series*, 2025
- T10 N. Fazeli, "Sensing the unseen: Dexterous tool manipulation through touch and vision," *IRIM Fall 2024 Seminar Georgia Tech*, 2024
- T11 N. Fazeli, "No modality left behind," *Next-Gen Robot Learning Symposium TU Darmstadt*, 2024
- T12 N. Fazeli, "Dexterous multimodal robotic tool-use: From compliant tool representations to high-resolution tactile perception," *Cornell Robotics Seminar Series*, 2023
- T13 N. Fazeli, "Dexterous multimodal robotic tool-use: From compliant tool representations to high-resolution tactile perception," *MIT Robotics Seminar Series*, 2023
- T14 N. Fazeli, "Model-based tactile control with high resolution and highly compliant tactile sensors," *IROS – RoboTac 2023 Visuo-Tactile Perception, Learning, Control for Manipulation and HRI*, 2023
- T15 N. Fazeli, "Limit surfaces: A tutorial and recent advances," *IROS – Workshop on Leveraging Models for Contact-Rich Manipulation*, 2023
- T16 N. Fazeli, "Recent advances in learning multimodal implicit representations for deformable objects," *RSS at KAIST*, 2023
- T17 N. Fazeli, "Recent advances in learning multimodal implicit representations for deformable objects," *3rd Workshop on Deformable Objects – ICRA*, 2023

- T18 N. Fazeli, “Tactile control for contact rich tool-use,” *4th Annual CNU-HYU Joint Symposium*, 2023
- T19 N. Fazeli, “Deformable object representations and tactile control for contact rich tool-use,” *UIUC Robotics Seminar*, 2022
- T20 N. Fazeli, “Tactile dexterity and deformable object manipulation for osam,” *AFRL/AgMan UNM*, 2022
- T21 N. Fazeli, “Visio-tactile object representations for forceful tool use,” *Sony AI*, 2021
- T22 N. Fazeli, “Learning implicit representations for perception and manipulation of deformable objects,” *Google Robotics*, 2020
- T23 N. Fazeli, “Visio-tactile object representations for forceful tool use,” *Samsung AI*, 2020
- T24 N. Fazeli, “Towards robotic manipulation - understanding the world through contact,” *University of Pennsylvania, Electrical and Systems Engineering Department*, 2019
- T25 N. Fazeli, “Towards robotic manipulation - understanding the world through contact,” *University of Michigan, Ann Arbor, Robotics Insitute and Mechanical Engineering*, 2019
- T26 N. Fazeli, “Towards robotic manipulation - understanding the world through contact,” *University of Southern California, Aerospace and Mechanical Engineering Department*, 2019
- T27 N. Fazeli, “Combining physical simulators and object-based networks for prediction and control,” *Conference on Neural Information Processing Systems (NeurIPS) – Workshop on Modeling the Physical World: Learning, Perception, and Control*, 2018
- T28 N. Fazeli, “See, Feel, Act: Learning Complex Manipulation Skills using Causal Structure and Multi-Sensory Fusion,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) – Workshop on Examining Sensing Modalities for Robust and Dexterous Object Manipulation*, 2018
- T29 N. Fazeli, “Towards High Fidelity Stochastic Simulators with Data-Augmented Models,” *Robotics: Science and Systems – Workshop on Learning and Inference in Robotics: Integrating Structure, Priors and Models*, 2018
- T30 N. Fazeli, “Empirical Evaluation of Common Contact Models for Planar Impact,” *New England Manipulation Symposium (NEMS)*, 2017
- T31 N. Fazeli, “Identifiability Analysis of Planar Rigid-Body Frictional Contact,” *New England Manipulation Symposium (NEMS)*, 2015

Students

Current Postdocs:

Mohamad Louai Shehab

Current PhD Students:

Name	Program	Co-advisor
Jayjun Lee	Robotics	-
An Dang	Robotics	Bernadette Bucher
Yinpei Dai	Computer Science	Joyce Chai
James Lorenz	Mechanical Eng.	Albert Shih
Julianne Barteck	Robotics	Bernadette Bucher
Yunhao Luo	Computer Science	JJ Park
Jay Choi	Robotics	-

Graduated PhD Students:

Name	Date	PhD Degree	What's Next?
Mark van Der Merwe	2026	Robotics	Honda Research Institute
Youngsun Wi	2026	Robotics	Google Deep Mind
Xili Yi	2026	Robotics	Intuitive Motion AI
Samanta Rodriguez	2025	Robotics	xx
William van Den Bogert	2025	Mechanical Eng.	Founder/CEO of Dragline Dynamics
Miquel Oller	2025	Robotics	Samsung Research America
Andrea Sipos	2024	Robotics	Manipulation lead at DLR (German NASA)
Sheng (Johnson) Zhong	2024	Robotics	Sunday Robotics

Media Coverage

2022	Chess Playing Robot Breaks Child's Finger in Russian Chess Tournament <i>Appeared on CNN and CNN New Day Podcast to comment on the topic.</i>
2018	See, Feel, Act: Hierarchical Learning for Complex Manipulation Skills with Multisensory Fusion <i>Covered in BBC, CNN, CBS, Tech Crunch, The Tech Review, The Times, Washington Post, Wired ...</i>
2015 – 2017	Amazon Picking Challenge <i>Covered in MIT Technology Review, MIT News, BetaBoston, EPR Retail ...</i>
2016	Fundamental Limitations of Rigid-body Contact Models <i>Feature on MIT's Mechanical Engineering Website and Twitter.</i>