Lillian Chin

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Academic Positions

University of Texas, Austin (UT Austin) — **2024 - present**
Assistant Professor of Electrical and Computer Engineering — *Austin, TX*

National Institutes of Health (NIH) — **2023 - 2024**
Postdoctoral Fellow, Advisors: Leonardo Cohen, Tom Bulea — *Bethesda, MD*

Education

Massachusetts Institute of Technology (MIT) — **2017 - 2023**
PhD in Electrical Engineering and Computer Science, Advisor: Daniela Rus — *Cambridge, MA*
Thesis: "Function Follows Form: An Exploration of Robotic Embodiment through Geometry" — *GPA: 4.8/5.0*

Massachusetts Institute of Technology (MIT) — **2017 - 2019**
S.M. in Electrical Engineering and Computer Science, Advisor: Daniela Rus — *Cambridge, MA*
Thesis: "A High-Deformation Electric Soft Robotic Gripper via Handed Shearing Auxetics" — *GPA: 4.8/5.0*

Massachusetts Institute of Technology (MIT) — **2013 - 2017**
S.B. in Electrical Engineering and Computer Science — *Cambridge, MA*
Minors in Mechanical Engineering, Comparative Media Studies — *GPA: 4.9/5.0*

Grants

Funded

Texas Robotics Industrial Affiliates Program, Seed Grant — **2024 - 2025**
"Dexterous Manipulation via Robot Learning Algorithms on Sensorized Grippers" — $50,000
PI with Co-PI Roberto Martín-Martín, UT Austin

Texas Robotics Industrial Affiliates Program, Seed Grant — **2024 - 2025**
"Optimization of Soft Robotic Feet for Quadruped Locomotion" — $25,000
PI with Co-PI David Fridovich-Keil, UT Austin

Under Review

NIH NIBIB, R21 Trailblazer — **Submitted 2024**
"Customizable Add-On Pressure Sensors to Quantify the Interaction Between Human and Medical Device" — $598,643
Sole PI

Honors and Awards

Research Awards

Outstanding Reviewer, Distingiushed Service Award – IEEE Robotics and Automation Magazine — **2024**
Winner ($5,000) (2 selected, institution) – Dimitris N. Chorafas Award — **2023**
Winning Team ($100,000) – Norman B. Leventhal City Prize — **2022**
Nominated, Best Paper [J.5] – IEEE Robosoft Conference — **2021**
First Place ($1,000) – MIT Research Slam — **2020**
Best Poster Award [C.3] – IEEE Robosoft Conference — **2019**
First Place, Student Paper Competition [W.3] – ACM Symposium on CS & Law — **2019**
Finalist (40 selected, nationally) – Intel Science Talent Search — **2013**

Fellowships

Fellow (32 selected, internationally) – Schmidt Science Fellows — **2023 – 2024**
Fellow (10 selected, nationally) – Hertz Foundation Graduate Fellowship — **2018 – 2023**
Scholar (55 selected, institution) – MIT Social and Ethical Responsibilities of Computing (SERC) Scholar — **2021 – 2023**
Fellow (2,000 selected, nationally) – National Science Foundation Graduate Research Fellowship — **2018 – 2021**
Fellow (40 selected, nationally among first-gen immigrants) – Paul & Daisy Soros Fell. for New Americans — **2018 – 2020**
Fellow (25 selected, institution) – MIT Energy Initiative Graduate Fellowship — **2018**
Fellow (75 selected, nationally) – Kleiner Perkins Caulfield Byers (KPCB) Engineering Fellow — **2014**

Personal Awards

Participant (85 selected, internationally among EECS academics w. underrepresented genders) – EECS Rising Stars **2022**
Participant (70 selected, nationally among underrepresented engineering academics) – NextProf Nexus **2022**
Participant (30 selected, internationally among robotics researchers) – Robotics, Science & Systems (RSS) Pioneers **2022**
First Place ($10) – Topsfield County Fair, Crafts Department, Original Needlework **2022**
Member (75 selected, institution) – Phi Beta Kappa Honors Society, Xi Chapter **2017**
First Place ($100,000) – Jeopardy College Championship Winner **2017**

Publications

Peer-Reviewed Journal Articles

[J.11] Xie, G., Holladay, R.*, **Chin, L.***, & Rus, D. "In-Hand Manipulation with a Simple Belted Parallel-Jaw Gripper." *IEEE Robotics and Automation Letters* 9(2), 1334-1341. (2024)
Presented at ICRA@40 in 2024.

[J.10] **Chin, L.**, Burns, M.*, Xie, G.*, & Rus, D. "Flipper-Style Locomotion through Strong Expanding Modular Robots." *IEEE Robotics and Automation Letters*. 8(2), 528-535. (2022)
Presented at ICRA 2023.

[J.9] Truby, R.*, **Chin, L.***, Zhang, A., & Rus, D. "Fluidic Innervation Sensorizes Structures from a Single Build Material." ***Science Advances***. 8(31). (2022)

[J.8] Zhang, A., Truby, R., **Chin, L.**, Li, S., & Rus, D. "Vision-Based Sensing for Electrically-Driven Soft Actuators." *IEEE Robotics and Automation Letters*. 7(4): 11509-11516. (2022)
Presented at IROS 2022.

[J.7] Araki, B., Choi, J., **Chin, L.**, Li, X., & Rus, D. "Learning Policies by Learning Rules." *IEEE Robotics and Automation Letters*. 7(2): 1284-1291. (2021)

[J.6] **Chin, L.** "How to Survive a Public Faming: Understanding 'The Spiciest Memelord' via the Temporal Dynamics of Involuntary Celebrification." *First Monday*. 26(4). (2021)

[J.5] Spielberg, A.*, Amini, A.*, **Chin, L.**, Matusik, W., & Rus, D. "Co-Learning of Task and Sensor Placement for Soft Robotics." *IEEE Robotics and Automation Letters*. 6(2): 1208-1215. (2021)
Nominated, Best Paper Award at Robosoft 2021.

[J.4] Truby, R.*, **Chin, L.***, & Rus, D. "A Recipe for Electrically-Driven Soft Robots via 3D Printed Handed Shearing Auxetics." *IEEE Robotics and Automation Letters*. 6(2): 795-802. (2021)
Presented at Robosoft 2021.

[J.3] Lipton, J., MacCurdy, R., Manchester, Z., **Chin, L.**, Celluci, D., & Rus, D. "Handedness in Shearing Auxetics Creates Rigid and Compliant Structures." ***Science***. 360(6389): 632-635. (2018)

[J.2] Stevens, A., Oliver, R., Kirchmeyer, M., Wu, J., **Chin, L.**, Polsen E., Archer, C., Boyle, C., Garber, J., & Hart, J. "Conformal robotic stereolithography." *3D Printing and Additive Manufacturing*, 3(4): 226-235. (2016)

[J.1] Harrow, C. & **Chin, L.** "Technology-Enhanced Discovery." *Mathematics Teacher*, **107**: 660 – 665. (2014)

Peer-Reviewed Conference Papers

[C.12] **Chin, L.**, Xie, G., Lipton J., & Rus, D. "Large-Expansion Bi-Layer Auxetics Create Compliant Cellular Motion." Manuscript under review at ICRA 2025.

[C.11] Xie, G., **Chin, L.**, Kim, B., Holladay, R., & Rus, D. "Strong Compliant Grasps Using a Cable-Driven Soft Gripper." In *Intelligent Robots and Systems (IROS), 2024 IEEE International Conference on.* IEEE. (2024).

[C.10] Zhang, A.*, **Chin, L.***, Tong, D.L., & Rus, D. "Embedded Air Channels Transform Soft Lattices into Sensorized Grippers." In *Robotics and Automation (ICRA), 2024 IEEE International Conference on.* IEEE. (2024).

[C.9] Chen, V.*, **Chin, L.***, Choi, J.*, Zhang, A.*, & Rus, D. "Real-Time Grocery Packing by Integrating Vision, Tactile Sensing, and Soft Fingers." In *Soft Robotics (Robosoft), 2024 IEEE International Conference on.* IEEE. (2024).

[C.8] Zhang, A.*, Wang, T.-H.*, Truby, R., **Chin, L.**, & Rus, D. "Machine Learning Best Practices for Soft Robot Proprioception." In *Intelligent Robots and Systems (IROS), 2023 IEEE International Conference on.* IEEE. (2023).

[C.7] Stölzle, M., **Chin, L.**, Truby, R., Rus, D., & Della Santina, C. "Modelling Handed Shearing Auxetics: Selective Piecewise Constant Strain Kinematics and Dynamic Simulation." In *Soft Robotics (Robosoft), 2023 IEEE International Conference on.* IEEE. (2023).

[C.6] **Chin, L.**, Barscevicius, F., Lipton, J., & Rus, D. "Multiplexed Manipulation: Versatile Multimodal Grasping via a Hybrid Soft Gripper." In *Robotics and Automation (ICRA), 2020 IEEE International Conference on.* IEEE. (2020).

[C.5] Lipton, J., **Chin, L.**, Miske, J., & Rus, D. "Modular Volumetric Actuators Using Motorized Auxetics." In *Intelligent Robots and Systems (IROS), 2019 IEEE International Conference on.* IEEE. (2019).

[C.4] **Chin, L.**, Yuen, M.C., Lipton, J., Trueba, L.H., Kramer-Bottiglio, R., & Rus, D. "A Simple Electric Soft Robotic Gripper with High-Deformation Haptic Feedback." In *Robotics and Automation (ICRA), 2019 IEEE International Conference on.* IEEE. (2019).

[C.3] **Chin, L.**, Lipton, J., Yuen, M.C., Kramer-Bottiglio, R., & Rus, D. "Automated Recycling Separation Enabled by Soft Robotic Material Classification." In *Soft Robotics (Robosoft), 2019 IEEE International Conference on.* IEEE. (2019). **Winner, Best Poster Award**

[C.2] **Chin, L.**, Lipton, J., MacCurdy, R., Romanishin, J., Sharma, C., & Rus, D. "Compliant Electric Acutators Based on Handed Shearing Auxetics." In *Soft Robotics (Robosoft), 2018 IEEE International Conference on.* IEEE. (2018).

[C.1] Beaudoin J., **Chin L.**, Zlotnick H., Cervantes T., Lassey S., Robinson J., & Slocum A. "Obstetrical Forceps with Passive Rotation and Sensor Feedback." ASME. Frontiers in Biomedical Devices, *2018 Design of Medical Devices Conference.* (2018).

Books and Book Chapters

[B.1] Sandoval Olascoaga, C., **Chin, L.**, Correa Menendez, J., Kovacs, R., Zhong, C., & de Monchaux, N. "Drawing Together: Technology Development for Public Service." In *Improving Technology Through Ethics* (pp. 65-82). Cham: Springer Nature Switzerland. (2024).

Patents

[P.2] Rus, D., Lipton, J., & **Chin, L.** "Vibration absorber for power tools", US11,583,972, issued on Feb. 21, 2023.

[P.1] Lipton, J., MacCurdy, R., **Chin, L.**, & Rus, D. "Non-planar shearing auxetic structures, devices, and methods", US10,850,406, issued on Dec. 1, 2020.

Workshop and Symposium Contributions

[W.3] **Chin, L.** "Focusing the Legal Lens on Data: Examining Metaphors of Personal Data and their Legal Implications " Paper and poster in 2019 ACM Inaugural Symposium on Computer Science and Law
First Prize, Student Paper Competition

[W.2] **Chin, L.** "Design and fabrication of dual-flipping mechanisms." Abstract and poster in 2019 International Conference on Robotics and Automation workshop: *Robot Design and Customization: Opportunities at the Intersection of Computation and Digital Fabrication*

[W.1] **Chin, L.**, Lipton, J., MacCurdy, R., Romanishin, J., Sharma, C., & Rus, D. "Compliant Electric Acutators Based on Handed Shearing Auxetics." Poster in 2018 New England Manipulation Symposium

Invited Speaker

Talk: "Materials Make the Bot: Directly Embedding Actuation and Perception into Robotic Structures"

UPenn, GRASP Lab Seminar	**Jun. 2024**
Queen's University at Kingston, Centre for Neuroscience Studies Talk	**Jun. 2023**
UC Berkeley, Mechanical Engineering Seminar	**Mar. 2023**
UT Austin, Electrical and Computer Engineering Seminar	**Mar. 2023**
Oregon State, Mechanical Engineering Seminar	**Feb. 2023**

Carnegie Mellon, Softbotics Seminar **Nov. 2022**
Georgia Tech, Mechanical Engineering Seminar **Oct. 2022**

MIT, EECS Dept., Academic Job Search Seminar – Panelist **May, Oct. 2024**
UMD, College Park, CS Dept., Class on Natural Language Processing – "Final Project Showcase" **May 2024**
UMass Boston, Dept. of Psychology, Class on Research Methods – "Repeated Measures" **Jun. 2023**
Hertz Summer Workshop – "Sensorizing Architected Materials with Fluidic Networks" **Jul. 2022**
CUNY Queens College, Media Studies Colloquium – "How To Survive a Public Faming" **Nov. 2021**
Hertz Fall Retreat – Panel Leader, "Robotics" **Sep. 2020**
University of Copenhagen SURF@DAWN – "Embodied Intelligence" **Jul. 2020**
Consumer Electronics Expo – Panelist, "Robots Save the Land" **Jan. 2020**
Hertz East Coast Retreat – Panelist, "Science and Media" **Sep. 2018**
Designed Education – Speaker, "Introduction to Robotics" **Jul. 2018**

Teaching Experience

Academic
Teaching Assistant, MIT CMS.701 – Current Debates in Media **2020**
Teaching Assistant, MIT 6.146 – Mobile Autonomous Systems Laboratory **2018**
Head Lab Assistant, MIT 6.002 – Circuits and Electronics **2015 – 2017**
Lab Assistant, MIT 6.004 – Computation Structures **2016**

Pedagogical Training
MIT Kaufman Teaching Certificate Program **2022**
MIT EECS UROP (Undergraduate Research Opportunities Program) Mentorship Initiative **2022**

Extracurricular
Tutor, ESL Program for MIT Facilities Department Employees **2019 – 2020, 2022 – 2023**
Mentor and Library Machine Master, MIT MakerWorkshop **2017 – 2020**
Teacher, MIT Educational Studies Program **2013 – 2019**
Tutor, InstaEDU / Chegg Tutors **2014 – 2017**

Service and Outreach

Service to the University
Faculty Co-Advisor, IEEE RAS (Robotics and Automation Society), UT Austin Chapter **2024 – present**

Service to the Profession
Conference and Society Service
Associate Co-Chair, IEEE RAS Technical Committee on Mechanisms and Design **2023 – present**
Program Committee Chair, RSS (Robotics: Science and Systems) Pioneers **2023**
Local Arrangements Chair, ACM Symposium on Computational Fabrication **2018**

External Paper Reviewer
IEEE Robotics and Automation Magazine (RA-M) **2023 – 2024**
IEEE Robotics and Automation Letters (RA-L) **2019 – 2024**
IEEE International Conference on Robotics and Automation (ICRA) **2019 – 2020, 2022 – 2024**
IEEE International Conference on Soft Robotics (Robosoft) **2018 – 2021, 2023, 2024**
First Monday **2020 – 2021, 2023**
IEEE International Conference on Intelligent Robots and Systems (IROS) **2019, 2021, 2022**
IEEE International Conference on Automation Science and Engineering (CASE) **2021**
International Journal of Robotics Research (IJRR) **2019**

Service to the Community
Mentorship
Project SHORT (Students for Higher Education Opportunities and Representation in Training) **2021 – 2023**
MIT EECS Graduate Application Assistance Program **2020**
Cientifico Latino Graduate Student Mentorship Initiative **2018 – 2020**
MIT Society of Women Engineers Alumni Mentorship Program **2018 – 2020**
MIT Office of Minority Education, Laureates and Leaders Program **2018 – 2020**

MIT Women in Electrical Engineering and Computer Science Student Mentorship Program **2018 – 2020**
Girls Who Code Mentorship Program **2015**
MIT Society of Women Engineers, Women in Science and Engineering High School Mentorship Program **2014**

Research Students Supervised

PhD Students

UT Austin

David Bershadsky [**NSF GRFP recipient**] – *Multimaterial 3D printing of soft-rigid hybrids* **2024 – present**
Gu-Cheol Jeong (informal advising) – *Flexible wrist for manipulation* **2024 – present**
Siqi Shang – *sim2real transfer of tactile data for manipulation* **2024 – present**
Chongxun Wang – *Sensorized medical phantoms for capsule robots* **2024 – present**
Tuo Wang – *Dynamic soft shape-morphing fingers* **2024 – present**

Masters Students

MIT

Gregory Xie [**J.10, J.11, C.11, C.12**, thesis] – *Design of sensorized soft gripper and belt-driven gripper* **2022 – 2023**
Jeana Choi [**J.7, C.9**, thesis] – *System integration of grocery packing robot* **2020 – 2022**

Undergraduate Students

UT Austin

Avery Atchley (Plan II Honors Program, Thesis Reader) – *Hearing aid design for youths playing sports* **2024 – present**
Darren Au – *Design of sensorized grippers* **2024 – present**
Tanya Lertpradist – *Exploration of acoustic tactile sensors and design of multiplexed manipulator* **2024 – present**
Hrishikesh Sahu – *Electronics design of wearable sensorized pads* **2024 – present**
Ava Chao Schraeder – *Mechanical design of wearable sensorized pads* **2024 – present**

MIT

Juliana Covarrubias – *Mechanical design of dual-flipping robots* **2022 – 2023**
Shruti Garg – *System integration of sensorized fingers and design of tactile sensors* **2022 – 2023**
Katherine Pan – *Mathematical exploration of dual-flipping robots* **2022 – 2023**
Grey Saramiento – *Algorithmic lattice generation and routing of fluidic sensors* **2022 – 2023**
Daniel Tong [**C.10**] – *Exploration of resin chemistry and metamaterial design through nTopology* **2022 – 2023**
Max Burns [**J.10**] – *Application exploration of modular volumetric robots* **2022**
Nine Morch – *Design testing rigs for metamaterials; mechanical design of dual-flipping robots* **2022**
Ahmed Diongue – *Mechanical characterization of metamaterials* **2022**
Valerie Chen [**C.9**] – *Computer vision algorithms for bin packing; tactile sensor design* **2019 – 2022**
Gregory Xie [**J.10**] – *System design of modular volumetric robots* **2019 – 2021**
Joaquin Giraldo-Laguna – *Fabrication and simulation of modular volumetric robots* **2020**
Sofia Leon – *Mechanical design of dual-flipping robots* **2019 – 2020**
Hannah Adams – *Mechanical characterization of metamaterials* **2019**
Felipe Barscevicius [**C.6**] – *Mechanical design of multiplexed manipulator* **2019**
Andromeda Teevens – *Exploration of machine learning segmentation algorithms* **2019**
Sabina Tontici – *Mechanical design of soft robotic gripper* **2019**
Chetan Sharma [**C.2**]– *Mechanical design of soft robotic gripper covering* **2017 – 2019**
Shiloh Curtis – *Exploration of computer vision segmentation algorithms* **2018 – 2019**
Jacob Miske [**C.5**] – *System design of modular volumetric robots* **2018 – 2019**
Jonathan Tagoe – *Design testing rigs for metamaterial characterization* **2018 – 2019**
Antares McCoy-Villaneda – *Design testing rigs for metamaterial characterization* **2018**
Luis Trueba [**C.4**] – *Grasping tests and mechanical design of grocery packing testbed* **2018**