LILLIAN CHIN

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ACADEMIC POSITIONS

University of Texas, Austin (UT Austin) Assistant Professor of Electrical and Computer Engineering

National Institutes of Health (NIH)

Postdoctoral Fellow, Advisors: Leonardo Cohen, Tom Bulea

2024 - present Austin, TX

> 2023 - 2024Bethesda, MD

Cambridge, MA

GPA: 4.8/5.0

Cambridge, MA

GPA: 4.9/5.0

2013 - 2017

2017 - 2019

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)

S.M. in Electrical Engineering and Computer Science, Advisor: Daniela Rus Thesis: "A High-Deformation Electric Soft Robotic Gripper via Handed Shearing Auxetics"

Massachusetts Institute of Technology (MIT)

B.S. in Electrical Engineering and Computer Science Minors in Mechanical Engineering, Comparative Media Studies

HONORS AND AWARDS

Research Awards

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 2022Participant (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 2017First Place (\$100,000) – Jeopardy College Championship Winner 2017

PUBLICATIONS

Peer-Reviewed Journal Articles

- [J.12] Chin, L., Lipton J., Xie, G., & Rus, D. "AuxSwarm: A Compliant Cellular Material with Electroactive Voxel-Level Control through Modular Auxetic Robots." Manuscript in preparation.
- [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)

- [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.11] Xie, G., Chin, L., Kim, B., Holladay, R., & Rus, D. "Strong Compliant Grasps through a Cable-Driven Soft Robotic Gripper." Manuscript in preparation.
- [C.10] Zhang, A.*, Chin, L.*, Tong, D.L., & Rus, D. "Embedded Air Channels Transform Soft Lattices into Sensorized Grippers." Manuscript accepted for ICRA 2024.
- [C.9] Chen, V.*, Chin, L.*, Choi, J.*, Zhang, A.*, & Rus, D. "Online Packing of Groceries Through Soft Fingers with Integrated Visual-Tactile Sensing." Manuscript accepted for Robosoft 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).

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

TEACHING EXPERIENCE – ACADEMIC

CMS.701 - Current Debates in Media

Teaching Assistant

- Led discussions on technology and society for a class of 15 senior undergraduate students.
- Managed transition from in-person to online teaching due to the COVID-19 pandemic.

MIT Mobile Autonomous Systems Laboratory

Teaching Assistant

- One of 7 undergraduate TAs who led this completely student-run course to design an autonomous robot with computer vision in a month.
- Staffed lab for 30 undergraduates, providing mechanical, electrical and programming guidance to 30 undergraduates in a time-constrained environment.

6.002 - Circuits and Electronics

Head Lab Assistant

- Staffed lab for 60-85 undergraduates, guiding students to a better understanding of circuits by helping them debug their lab circuits, from basic ADCs to audio amplifiers
- Organized and scheduled 8 different Lab Assistants, helping them with their duties by giving weekly lab overviews

6.004 - Computation Structures

Lab Assistant

• Staffed lab for 300 undergraduates, guiding students to a better understanding of digital circuits from the transistor level to creating their own basic CPU in assembly language

2018

2015 - 2017

Cambridge, MA

Cambridge, MA

Cambridge, MA

2016

MIT Kaufman Teaching Certificate Program

Participant

• Participated in semester-long teaching training program, learning evidence-based teaching techniques to create effective lessons and inclusive classrooms.

MIT EECS UROP Mentorship Initiative

Focus Group Member

• Acted as semester-long beta tester for graduate student intiative to develop new guidelines for undergraduate research mentorship

TEACHING EXPERIENCE – OUTSIDE OF CLASSROOM

Mentorship	
Mentor, Project SHORT	2021 - 2023
Mentor, MIT EECS Graduate Application Assistance Program	2020
Mentor, Cientifico Latino Graduate Student Mentorship Initiative	2018 - 2020
Mentor, MIT Society of Women Engineers Alumni Mentorship Program	2018 - 2020
Mentor, MIT Office of Minority Education Laureates and Leaders Program	2018 - 2020
Mentor, MIT Women in Electrical Engineering and Computer Science	2010 - 2020 2018 - 2020
Mentor, Girls Who Code	2015
Mentor, Society of Women Engineers	2010
Honor, Society of Women Engineers	-011
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
Professional Service	
Conference and Society Service	
Associate Co-Chair, IEEE BAS Technical Committee on Mechanisms and Design	2023 - present
Program Committee Chair, BSS Pioneers	2020 present
Local Arrangements Chair, ACM Symposium on Computational Fabrication	2025
Local Arrangements Chan, ACM Symposium on Computational Fabrication	2018
External Paper Reviewer	
IEEE Robotics and Automation Magazine (RA-M)	2023
First Monday	2020-2021,2023
IEEE Robotics and Automation Letters (RA-L)	2019 - 2023
IEEE International Conference on Robotics and Automation (ICRA)	2019 - 2020, 2022 - 2024
IEEE International Conference on Soft Robotics (Robosoft)	2018 - 2021, 2023, 2024
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
Invited Speaker	
Talk: "Materials Make the Bot: Directly Embedding Actuation and Percention into Robotic !	Structures"
Queen's University at Kingston Centre for Neuroscience Studies Talk	Iun 2023
UC Berkeley Mechanical Engineering Seminar	Mar 2023
UT Austin Electrical and Computer Engineering Seminar	Mar. 2023
Oregon State Mechanical Engineering Seminar	Feb 2023
Carnegio Mollon. Softhetics Sominar	Nov 2023
Georgia Tech. Mechanical Engineering Seminar	Oct 2022
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UMass Boston, Dept. of Psychology, Class on Research Methods – "Repeated Measures"	June 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

2022

Cambridge, MA

Cambridge, MA

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

Research Students Supervised

Masters Students	
Gregory Xie [J.10, J.11, J.12, C.11, 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	
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, J.12] – 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