MICHELLE A. LEE

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EDUCATION

Ph.D. Candidate at Stanford University — Jan 2018- Present
Mechanical Engineering
Masters of Science at Stanford University — 2015-2018
Mechanical Engineering
Bachelors of Science at Stanford University — 2010-2015
Chemical Engineering

HONORS AND AWARDS

- NeurIPS Robot Learning Workshop Best Paper Award, 2019
- IEEE International Conference of Robotics and Automation (ICRA) Best Conference Paper Award, 2019
- IEEE International Conference of Robotics and Automation (ICRA) Best Paper Award in Cognitive Robotics Finalist, 2019
- Accel Innovation Scholar, 2019
- Mayfield Fellows Program, 2015
- Tau Beta Pi, top 12% (junior year) of Stanford engineering class based on GPA, 2015
- Stanford Build Tech Grant, $3000 awarded to selected robotics projects, 2013

PUBLICATIONS

Lee, M. A.*, Yi, B.*, Martín-Martín, R., Savarese, S., & Bohg, J._. Multimodal Sensor Fusion with Differentiable Filters. In 2020 International Conference on Intelligent Robots and Systems (IROS).

Lee, M. A.*, Florensa, C.*, Tremblay, J., Ratliff, N., Garg, A., Ramos, F., & Fox, D. (2020). Guided Uncertainty-Aware Policy Optimization: Combining Learning and Model-Based Strategies for Sample-Efficient Policy Learning. In 2020 Conference on Robotics and Automation (ICRA).

Lee, M.A., Zhu, Y., Zachares, P., Tan, M., Srinivasan, K., Savarese, S., Fei-Fei, L., Garg, A. and Bohg, J. (2020). Making sense of vision and touch: Learning multimodal representations for contact-rich tasks. In IEEE Transactions on Robotics.

Martín-Martín, R., **Lee, M. A.**, Gardner, R., Savarese, S., Bohg, J., & Garg, A. (2019). Variable Impedance Control in End-Effector Space: An Action Space for Reinforcement Learning in Contact-Rich Tasks. In 2019 International Conference on Intelligent Robots and Systems (IROS).

Lee, M.A.*, Zhu, Y.*, Srinivasan, K., Shah, P., Savarese, S., Fei-Fei, L., Garg, A. and Bohg, J. (2019). Making sense of vision and touch: Self-supervised learning of multimodal representations for contact-rich tasks. In 2019 International Conference on Robotics and Automation (ICRA). **ICRA Best Paper Award, Finalist for Best Paper Award in Cognitive Robotics.**

REVIEWED WORKSHOP PAPERS

Lee, M. A.*, Florensa, C.*, Tremblay, J., Ratliff, N., Garg, A., Ramos, F., & Fox, D. (2019). Guided Uncertainty-Aware Policy Optimization. In 2019 NeurIPs Workshop on Robot Learning: Control and Interaction in the Real World. **Best Paper Award.**

Martín-Martín, R., **Lee, M. A.**, Gardner, R., Savarese, S., Bohg, J., & Garg, A. Variable Impedance Control in End-Effector Space: An Action Space for Reinforcement Learning in Contact-Rich Tasks. In 2019 RSS Women in Robotics Workshop.

Lee, M.A., Zhu, Y., Zachares, P., Tan, M., Srinivasan, K., Savarese, S., Fei-Fei, L., Garg, A. and Bohg, J.(2019). Variational multimodal representations for contact-rich tasks. In 2019 RSS Workshop on Scalable Learning for Integrated Perception and Planning Workshop.

Lee, M.A.*, Zhu, Y.*, Srinivasan, K., Shah, P., Savarese, S., Fei-Fei, L., Garg, A. and Bohg, J. Learning Multi-Modal Representations for Contact-Rich Manipulation Tasks. In 2018 RSS Women in Robotics Workshop.

PAPERS UNDER REVIEW

Lee, M. A., Tan, M., Zhu, Y., & Bohg, J. Detect, Reject, Correct: Crossmodal Compensation of Corrupted Sensors. Under Review in ICRA 2021.

Zachares P., **Lee, M. A.**, Liao, W., & Bohg, J. Interpreting Contact Interactions to Overcome Failure in Robot Assembly Tasks. Under Review in ICRA 2021.

INVITED TALKS AND PANELS

NeurIPS 2020 Object Representations for Learning and Reasoning Workshop, Panel Discussion, December 11, 2020

NVIDIA GTC 2020, "Deep Dive with Michelle A. Lee, Making Sense of Vision and Touch: Self-Supervised Learning of Multimodal Representations for Contact-Rich Tasks (ICRA)," May 14, 2020

National Cheng Kung University Institute of Manufacturing Information and Systems Seminar Talk, "Multimodal Fusion for Robust Learning," May 7, 2020

Stanford Computer Science Faculty Lunch Ph.D. Student Presentation, "Making Sense of Vision and Touch: Combining Sensor Modalities for Robust Robot Learning," March 17, 2020

NeurIPS 2019 Workshop on Robot Learning: Control and Interaction in the Real World, "Best Paper Invited Talk: Guided Uncertainty-Aware Policy Optimization," December 14, 2019

PATENT APPLICATION

US 81,1531,528, Germany 81,578,536, China 81,578,530
"Guided Uncertainty-Aware Policy Optimization: Combining Learning and Model-Based Strategies for Sample-Efficient Policy Learning."
Filed Nov 20, 2019, Nov. 09, 2020, Nov. 20, 2020. *Patents Pending*

WORK EXPERIENCE

Stanford AI Lab (Stanford, CA) Aug '17-Present
Research Assistant
- Advised by Jeannette Bohg at the Interactive Perception Action Lab (IPRL)
- Member of the People, Robots, and AI group led by Fei-Fei Li and Silvio Savarase
- Robot learning, perception, multimodal sensor fusion, deep learning, and controls

NVIDIA AI (Seattle, WA) June '19 - Sept '19
Research Intern
- Advised by Dieter Fox and Fabio Ramos

- Reasoning under uncertainty by combining expert and learned policies, reinforcement learning

LCY (Huizhou, China & Taipei, Taiwan) June '16- April '17
Special Projects Engineer
- 6-member special projects team to oversee and design a new automated production line at factory

SpaceX (Hawthorne, CA) Sept '15- Dec '15
Vehicle Engineering Intern
- Designed flight parts for second stage rocket from design to manufacturing to stress testing

LEADERSHIP EXPERIENCE

Stanford AI Lab (SAIL) Blog Sept 18- Current
Founding co-editor-in-chief
• Launched blog for the Stanford AI Lab that features SAIL research, written for general audiences
• Edited blog, solicited writing from lab members, created editorial guideline

Stanford AI Lab Robotics Lunch Jan 19- Sept 19
Co-organizer
• Bi-weekly luncheon for researchers to present original research on robotics

Stanford AI Salon Sept 18-Sept 19
Co-organizer
•Organized bi-weekly salon event on big picture questions in AI
•Moderated a public AI Salon event on the Future of Work with over 500+ participants

Tau Beta Pi Sept '14- June '15
Professional Development Co-Chair
- Organized dinners for Tau Beta PI members with Silicon Valley founders and VC's

TEACHING EXPERIENCE

TA, CS 336: Robot Perception and Decision-Making	Fall '19
Instructor, AI4ALL, taught 9th grade girls machine learning and statistics	Summer '18
TA, CS 326: Topics in Advanced Robotic Manipulation (graduate-level course)	Fall '17
TA, Industrial Revolution Camp (entrepreneurship camp in East Palo Alto)	Summer '16

ADVISING & MENTORSHIP EXPERIENCE

Stanford AI Lab Grad/Undergrad Mentorship Program Mentor	April '18- June'20
Ria Doshi (High school student '22)	Aug '18-Current
Peter Zachares (Stanford ME Masters of Science '19 and Masters of Engineering '20)	Sept '18- Dec '20
Matthew Tan (Stanford CS Undergraduate '20, Masters of Science '20)	Oct '18- June '20
Rachel Gardner (Stanford CS Undergraduate '20, Masters of Science '21)	Oct '18- Current
Brent Yi (Stanford CS Masters Student '21)	Oct '19-Current

REVIEWING ACTIVITIES

Journals: IEEE Robotics and Automation Letters (RA-L) 2020, IEEE Robotics and Automation Letters (RA-L) 2019

Conferences and Workshops: IEEE International Conference on Robotics and Automation (ICRA) 2021, Conference on Robot Learning (CoRL) 2020, International Conference on Intelligent Robots and Systems (IROS) 2020, Robotics: Science and Systems (RSS) 2020, RSS Action Space Workshop 2020, ICRA 2020, RSS 2019, ICRA 2019

Magazines: IEEE Robotics & Automation Magazine 2020,