ROBOTICS RESEARCHER

JESSICA YIN

ABOUT

I'm interested in how to leverage tactile sensing for dexterous robot manipulation. My work focuses on the intersection of sensor design, simulation, and robot control. I'm based in Seattle, WA.

EDUCATION

University of Pennsylvania, GRASP Lab

PhD in Mechanical Engineering

Thesis: Exploring Multimodal Sensing Across the Stack for Robot Manipulation

NSF GRFP Fellow

Advisers: Mark Yim & James Pikul

2020 - 2024

Carnegie Mellon University

BS in Mechanical Engineering
Minor in Physical Computing, School of Computer Science

Dean's List (GPA 3.75+): Spring 2018 - Spring 2020

Advisers: Carmel Majidi & Tess Hellebrekers

2016 - 2020

LINKS

jessicayin.github.io

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Google Scholar Profile

EXPERIENCE

RESEARCH SCIENTIST — 12.2025 - Present

NVIDIA - Seattle, WA

- Lead tactile sensing research for dexterous hands on the Dex team in the Applied Deep Learning Research group

POSTDOCTORAL RESEARCHER — 12.2024 - 12.2025

Meta FAIR - Redmond, WA

- Led full-stack robotics research: developed tactile glove hardware, data collection infrastructure, policy training and deployment pipelines, resulting in RAL submission
- Co-authored ICRA & RSS papers with two PhD interns about leveraging human data from smart glasses and tactile gloves
- Independently managed lab, equipment, and robots onsite

AI RESEARCH SCIENTIST INTERN — 6.2023 - 1.2024

Meta FAIR - Redmond, WA

- Developed tractable, zero-shot tactile simulation for dexterous sim2real RL in IsaacGym, published at ICRA 2025
- Built Quest teleop stack for Allegro hand

RESEARCH SCIENTIST INTERN — 5.2022 - 8.2022

Toyota Research Institute - Cambridge, MA

- Pioneered research about proximity and tactile sensing fusion to segment contact patches, published at ICRA 2025
- Co-inventor of 2 patents filed by TRI for sensor designs and algorithms

PHD STUDENT RESEARCHER — 8.2020 - 11.2024

University of Pennsylvania - Philadelphia, PA

- Designed novel multimodal proximity and tactile sensor, awarded Best Student Paper at Robosoft 2022
- Cross-disciplinary collaborations for robot applications with Penn Nursing and Penn Medicine, resulting in 2 publications
- Mentored 6 high school and undergraduate researchers

ROBOTICS RESEARCH INTERN — 6.2019 - 8.2019

MIT Lincoln Laboratory - Lexington, MA

- Collaborated with 6 interns for autonomous drone and vehicle projects in the Rapid Prototyping Group

STUDENT RESEARCHER — 8.2016 - 6.2020

Carnegie Mellon University - Pittsburgh, PA

- Co-authored 3 papers about tactile sensors for robotics and wearables in IROS, RoboSoft, Adv. Func. Materials
- Placed 3rd nationally in Society of Women Engineers Research Poster Competition
- CMU Undergraduate Excellence in Research Award (top 3 in Mechanical Engineering)

JESSICA YIN

SELECTED PUBLICATIONS

ROBOT LEARNING

OSMO: An Open-Source Tactile Glove for Human-to-Robot Skill Transfer
Jessica Yin, Haozhi Qi*, Youngsun Wi*, Sayantan Kundu, Mike Lambeta, William Yang, Changhao Wang, Tingfan Wu, Jitendra Malik, Tess Hellebrekers. Under review at RAL.

TactAlign: Human-to-Robot Policy Transfer via Tactile Alignment
Youngsun Wi, **Jessica Yin**, Elvis Xiang, Akash Sharma, Jitendra Malik, Mustafa Mukadam, Nima Fazeli, Tess Hellebrekers. Under review at RSS 2026.

Dexterity from Smart Lenses: Multi-Fingered Robot Manipulation with In-the-Wild Human Demonstrations
Irmak Guzey, Haozhi Qi, Julen Urain, Changhao Wang, **Jessica Yin**, Krishna Bodduluri, Mike Lambeta, Lerrel Pinto, Akshara Rai, Jitendra Malik, Tingfan Wu, Akash Sharma, Homanga Bharadhwaj. ICRA 2026.

Learning In-Hand Translation Using Tactile Skin with Shear and Normal Force Sensing
Jessica Yin, Haozhi Qi, Jitendra Malik, James Pikul, Mark Yim, Tess Hellebrekers. ICRA 2025.

TACTILE SENSORS AND SYSTEMS

Multimodal Proximity and Visuotactile Sensing with a Selectively Transmissive Soft Membrane
Jessica Yin, Gregory M. Campbell, James Pikul, Mark Yim. Robosoft 2022. *Best Student Paper Award.*

Proximity and Visuotactile Point Cloud Fusion for Contact Patches in Extreme Deformation
Jessica Yin, Paarth Shah, Naveen Kuppuswamy, Andrew Beaulieu, Avinash Uttamchandani, Alejandro Castro, James Pikul, and Russ Tedrake. ICRA 2025.

Wearable Soft Technologies for Haptic Sensing and Feedback (Review Paper)
Jessica Yin, Ronan Hinchet, Herbert Shea, Carmel Majidi. Advanced Functional Materials 2021.

Closing the Loop with Liquid-Metal Sensing Skin for Autonomous Soft Robot Gripping
Jessica Yin, Tess Hellebrekers, Carmel Majidi. RoboSoft 2020.

Liquid Metal-Microelectronics Integration for a Sensorized Soft Robot Skin
Tess Hellebrekers, Kadri Bugra Ozutemiz, **Jessica Yin**, Carmel Majidi. IROS 2018.

PATENTS

Multimodal Proximity and Visuotactile Sensing Through Transmissive Membrane — 2023
US Patent App. 18/327,981 - University of Pennsylvania
Inventors: James Pikul, Mark Yim, **Jessica Yin**

Deformable sensors having an internal stereo depth sensor and an infrared sensor — 2025
US Patent App. 19/316,042 - Toyota Research Institute
Inventors: Andrew Beaulieu, Naveen Kuppuswamy, **Jessica Yin**

Collapsible protrusions having a variable coefficient of friction — 2025
US Patent App. 18/644,687 - Toyota Research Institute
Inventors: Andrew Beaulieu, Naveen Kuppuswamy, **Jessica Yin**