

Megha H. Tippur

mhtippur@mit.edu | Website | Google Scholar | (334) 559 – 2185 | Cambridge, MA | United States Citizen

Education

Massachusetts Institute of Technology

Ph.D. Electrical Engineering and Computer Science, *GPA 5.0 / 5.0*

M.S. Mechanical Engineering, *GPA 5.0 / 5.0*

- *Research:* Design & use of camera-based tactile sensors for dexterous robotic manipulation, advised by Dr. Edward Adelson.
- *Master's Thesis:* "Design and Manufacturing Methods for a Curved All-Around Camera-Based Tactile Sensor"
- *Coursework:* Robotic Manipulation, Deep Learning, Computer Vision, System Dynamics & Control, Modeling & Simulation

Georgia Institute of Technology

B.S. Electrical Engineering, *GPA 4.0 / 4.0*

• *Minor:* Robotics

- *Coursework:* Automation & Robotics, Machine Learning, Digital Signal Processing, Control System Design, Digital Design

Research Experience

Large Behavior Models Division, Toyota Research Institute

Research Intern

- Design and development of a wearable platform integrating tactile sensing for in-the-wild data collection, enabling efficient offline capture and retargeting of dexterous hand demonstrations for imitation learning pipelines.

Adaptive Robotic Manipulation Lab, Georgia Institute of Technology

Undergraduate Research Assistant

- Designed and developed a wearable robotic turret gun that utilized haptic feedback to inform users of a target's position and autonomously fire at objects, advised by Dr. Frank Hammond III.

Sung Robotics Lab, GRASP Lab at University of Pennsylvania

Summer Undergraduate Research Assistant

- Designed and studied mechanical and electrical properties of knitted shape-memory alloy (SMA) actuators for applications in soft robotics and programmable matter, advised by Dr. Cynthia Sung.

NASA Jet Propulsion Lab and California Institute of Technology

Caltech WAVE Fellows Summer Research Assistant

- Studied reliability, degradation, and efficiency of 64-pixel Superconducting Nanowire Single-Photon Detectors (SNSPDs) for NASA Deep Space Optical Communications (DSOC) experiments, managed by Dr. Matthew Shaw.

Butera Neural Engineering Lab, Georgia Institute of Technology

Undergraduate Research Assistant

- Studied neural stimulation and blocking of the tibial nerves in rats by analyzing imaged gait patterns and EMG signals from the animal's muscles for possible applications in physical therapy, advised by Dr. Robert Butera.

Awards and Honors

- NSF Graduate Research Fellowship 2020
- MIT Mechanical Engineering Chang-Mansfield Fellowship 2020
- Electrical Engineering Senior Scholar Award, Georgia Institute of Technology 2020
- Caltech Wave Fellowship 2018
- Stamps President's Scholarship (Merit-based, Full-ride, Top 1% of Applicants) 2016
- James and Ophelia Killgore Scholarship (Merit-based) 2016

Selected Publications

- N. Sunil*, **M. Tippur***, Arnau Portillo, E. Adelson, A. Rodriguez, "Reactive In-Air Clothing Manipulation with Confidence-Award Dense Correspondence and Visuotactile Affordance," *CoRL*, 2025.
- S. Yuan, S. Wang, R. Patel, **M. Tippur**, C. Yako, E. Adelson, J. K. Salisbury, "Tactile-Reactive Roller Grasper," *T-RO*, 2025.
- **M. Tippur** and E. Adelson, "RainbowSight: A Family of Generalizable, Curved, Camera-Based Tactile Sensors for Shape Reconstruction," *ICRA*, 2024.
- T. Chen, **M. Tippur**, S. Wang, V. Kumar, E. Adelson, P. Agarwal, "Visual Dexterity: In-Hand Dexterous Manipulation from Depth," *Science Robotics*, 2023.
- **M. Tippur** and E. Adelson, "Gelsight360: An Omnidirectional Camera-Based Tactile Sensor for Dexterous Robotic Manipulation," *RoboSoft*, 2023. **Best Paper Finalist.**
- S. Pai*, T. Chen*, **M. Tippur***, E. Adelson, A. Gupta, P. Agarwal, "TactoFind: A Tactile Only System for Object Retrieval," *ICRA*, 2023.
- C. Kim, A. Chien, **M. Tippur** and C. Sung, "Fabrication and Characterization of I-cord Knitted SMA Actuators," *RoboSoft*, 2021.

Skills

- **Programming:** Python, C++, VHDL, Matlab, Blender, Java, some knowledge of Assembly
- **Hardware and Prototyping:** extensive PCB Design (EAGLE), Digital Design, AutoCAD, SolidWorks, 3D printing and mechanical machining experience, extensive silicone molding design and fabrication experience