

# Adithya Murali, Ph.D.

## Senior Researcher in Physical AI

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## Profile

I work on Physical AI—my research is at the crossroads of manipulation, robot learning, and simulation. More recently at NVIDIA, I have worked on modular systems, such as grasp generation, synthetic data generation, and motion planning, such that they can be easily integrated into applications in industrial and home robotics. For my work on scaling robot learning with simulation and low cost robots, I was featured in the MIT Technology Review Innovators Under 35 Asia Pacific 2025. I was the first person to have deployed a deep neural network policy on robots in human homes. My research has also been extensively covered on popular media outlets like the New York Times, WIRED, The Robot Report, TechCrunch, and The Straits Times.

## Employment History

- 2026 – . . . . **Staff Research Scientist** NVIDIA
- 2023 – 2025 **Senior Research Scientist** NVIDIA
- 2021 – 2023 **Research Scientist** NVIDIA
- 2019 **Research Intern** NVIDIA
- 2018 – 2019 **Research Intern** Meta AI Research
- 2016 **Software Engineer** Amazon AWS Rekognition service




## Education

- 2016 – 2020 **Ph.D., Carnegie Mellon University** School of Computer Science, Robotics Institute  
Thesis title: *Data-Driven Robotic Grasping in the Wild*. Advisor: *Abhinav Gupta*
- 2012 – 2015 **B.S., University of California, Berkeley** Electrical Engineering & Computer Science  
Honors, Phi Beta Kappa, Advisor: *Ken Goldberg*
- 2010 – 2011 **Raffles Diploma, Raffles Junior College, Singapore** Distinction, Cambridge A-Levels

## Press Coverage on Research

- 2025 **MIT TR35** *MIT Technology Review Innovators Under 35 Asia Pacific 2025* [Link](#)
- MarkTechPost** *NVIDIA AI Releases GraspGen*. [Link](#)
- Intrinsic.ai** *Intrinsic and NVIDIA deepen platform integrations for intelligent robotics*. [Link](#)
- 2024 **TechCrunch** *Alphabet-owned Intrinsic incorporates Nvidia tech into robotics platform*. [Link](#)
- The Robot Report** *Intrinsic uses NVIDIA foundation models to improve robotic grasping*. [Link](#)
- NVIDIA GTC Keynote** *Foundation Grasp project announced by CEO in keynote*. [Link](#)
- NVIDIA Product Announcement** *Isaac Manipulator*. [Link](#)
- 2022 **NVIDIA Tech Blog** *Generating Collision-Free Robot Movement with Motion Policy Networks*. [Link](#)
- 2020 **NVIDIA News** *Robotics Reaps Rewards at ICRA* by Lauren Finkle. [Link](#)
- 2019 **WIRED** *Facebook Unleashes Software to Make Programming Robots Easy* by Matt Simon. [Link](#)
- 2018 **WIRED** *Robots are Renting Airbnbs to Get a Better Grip* by Matt Simon. [Link](#)
- 2016 **IEEE Spectrum** *Would You Trust a Robot Surgeon to Operate on You?* by Eliza Strickland. [Link](#)

## Press Coverage on Research (continued)




- 2014  **The New York Times** *New Research Center Aims to Develop Second Generation of Surgical Robots* by John Markoff. [Link](#)
-  **CBS News** *Robots vs Ebola*. [Link](#)
- 2012  **The Straits Times** *Students shine in Scientific Research* by Lin Zhaowei. [Link](#)

## Awards and Achievements




- 2025  **MIT TR35 Innovators Under 35, APAC**, MIT TR35
- 2020  **Best Robot Manipulation and Student Paper Finalist**, ICRA Conference
- 2017  **Presidential Fellowship**, Carnegie Mellon University and Uber Inc.
- 2016  **Presidential Fellowship**, Columbia University (Offered)
-  **CSE Fellowship**, University of Washington (Offered)
- 2015  **Best Conference and Medical Robotics Paper Finalist**, ICRA Conference
- 2014  **The MacBride, and Dolder Family Alumni Scholarship**, Cal Alumni Association
- 2013  **Leslie Lipson Essay Prize**, UC Berkeley
-  **Edward Kraft Award**, UC Berkeley
- 2012  **All-Rounded Excellence Award**, Raffles Institution
- 2011  **SSEF Gold Award** Ministry of Education Singapore

## Miscellaneous




### Academic Service

- 2025  **Organizing Committee, Sponsorship Chair** CoRL
- 2024  **Area Chair** CoRL
- 2016 – . . . .  **Program Committee** NeurIPS, CoRL, ICRA, CVPR, ICCV, IROS, T-RO, RA-L
- 2019 – 2020  **PhD Admissions Committee** PhD in Robotics at CMU SCS
- 2017  **RoboOrg Officer** Organized events in departmental graduate student organization

### Teaching

- Fall 2019  **Teaching Assistant, CMU** Statistical Techniques in Robotics with David Held
- Fall 2018  **Teaching Assistant, CMU** Learning for Manipulation with Oliver Kroemer; co-designed the class for its first ever offering
- Fall 2015  **Tutor, UC Berkeley** Introduction to Structure and Interpretation of Computer Programming (CS61A) by John DeNero

### Workshop Organization

- 2023  **What tasks should robotics researchers focus on?** at the Conference on Robot Learning (Atlanta, USA). <https://sites.google.com/view/corl23-task-workshop>
- 2022  **Benchmarking in Robotic Manipulation** at the Conference on Robot Learning (Auckland, New Zealand). <https://sites.google.com/view/corl22benchmarkingworkshop/home>
- 2019  **Bringing Robots to the Computer Vision Community** at CVPR (Long Beach, CA) <https://sites.google.com/andrew.cmu.edu/cvpr19robots/home>

### Students and Interns Advised

- 2025  **Beining Han, Princeton University** NVIDIA PhD Intern

## Miscellaneous (continued)

- 2024 – 2025
- 📌 **Youngsun Wi, University of Michigan** NVIDIA PhD Intern
  - 📌 **Jun Yamada, Oxford University** NVIDIA PhD Intern, Learning + MPC
- 2023 – 2024
- 📌 **Raven Huang, UC Berkeley** NVIDIA PhD Intern
- 2022 – 2024
- 📌 **Wentao Yuan, UW** NVIDIA PhD Intern. Next Position: Google Deepmind
- 2022
- 📌 **Sudeep Dasari, CMU** NVIDIA PhD Intern
- 2021 – 2022
- 📌 **Adam Fishman, UW** NVIDIA PhD Intern, Next Position: OpenAI
- 2021
- 📌 **Yun-Chun Chen, University of Toronto** NVIDIA PhD Intern, Neural Motion Fields
  - 📌 **Tao Chen, MIT** NVIDIA PhD Intern, RL for Handover
- 2017 – 2018
- 📌 **Tao Chen** M.S. in Robotics, CMU. Next Position: PhD EECS, MIT
  - 📌 **Gaurav Pathak** CMU Visitor. Next Position: CMU M.S. Robotics
- 2016
- 📌 **Maitreyee Joshi** Undergraduate Research, CMU. Next Position: Microsoft

### Open-source Software

- 2025
- 📌 **GraspGen** Released SOTA NVIDIA sim2real diffusion model for grasping: <https://github.com/NVlabs/GraspGen>
  - 📌 **Scene Synthesizer** Released internal NVIDIA tool for procedural scene generation: <https://github.com/NVlabs/scenesynthesizer>
- 2023
- 📌 **Multi-Task Masked Transformer** NVIDIA Intern project by Wentao Yuan. Unified transformer model for low-level 6-DOF manipulation: <https://github.com/NVlabs/M2T2>
  - 📌 **CabiNet** Scaling neural collision checking for robotic rearrangement: <https://github.com/NVlabs/cabinet>
- 2022
- 📌 **Motion Policy Networks** NVIDIA Intern project by Adam Fishman. Large-scale imitation learning of motion-planning: <https://github.com/NVlabs/motion-policy-networks>
- 2020
- 📌 **TaskGrasp** Task-Oriented 6-DOF Grasping with Graph Neural Networks. <https://github.com/adithyamurali/TaskGrasp>
- 2019
- 📌 **PyRobot** Light weight, hardware independent framework for robot manipulation and navigation. <https://github.com/facebookresearch/pyrobot>
  - 📌 **LoCoBot** Low-cost (around \$4K USD in 2019, before covid-hyperinflation) mobile manipulator for research and education. <http://www.locobot.org/>

## Research Publications


### Granted Patents

- 1 **A. Murali**, A. Mousavian, C. Eppner, A. Fishman, and D. Fox, *Us patent us20240177392a1: Collision detection for object rearrangement using a 3d scene representation*, 2025.
- 2 **A. Murali**, B. Sundaralingam, Y.-C. Chen, D. Fox, and A. Garg, *Us patent us20230256595a1: Techniques for robot control using neural implicit value functions*, 2025.
- 3 **A. Murali**, A. Mousavian, C. Eppner, and D. Fox, *Us patent us11724401b2: Grasp determination for an object in clutter*, <https://patents.google.com/patent/US20210138655A1/en>, 2023.

### Conference Proceedings

- 1 **A. Murali** et al., “Graspgen: A diffusion-based framework for 6-dof grasping with on-generator training,” in *arXiv preprint arXiv:2507.13097*, 2025. 🌐 URL: <https://arxiv.org/abs/2507.13097>

- 2 C. Eppner et al., “Scenesynthesizer: A python library for procedural scene generation in robot manipulation,” in *The Open Journal*, 2024.
- 3 H. Huang, B. Sundaralingam, A. M. Arsalan Mousavian, K. Goldberg, and D. Fox, “Diffusionseeder: Seeding motion optimization with diffusion for rapid motion planning,” in *Conference on Robot Learning*, 2024.
- 4 W. Yuan et al., “Robopoint: A vision-language model for spatial affordance prediction for robotics,” in *Conference on Robot Learning (CoRL)*, 2024. [URL: https://robo-point.github.io/](https://robo-point.github.io/)
- 5 **A. Murali**, A. Mousavian, C. Eppner, A. Fishman, and D. Fox, “CabiNet: Scaling neural collision detection for object rearrangement with procedural scene generation,” in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2023. [URL: https://cabinet-object-rearrangement.github.io/](https://cabinet-object-rearrangement.github.io/)
- 6 W. Yuan, **A. Murali**, A. Mousavian, and D. Fox, “M2tz: Multi-task masked transformer for object-centric pick and place,” in *7th Annual Conference on Robot Learning*, 2023.
- 7 Y.-C. Chen, **A. Murali**, B. Sundaralingam, W. Yang, A. Garg, and D. Fox, “Neural motion fields: Encoding grasp trajectories as implicit value functions,” in *RSS Workshop on Implicit Representations for Robotics*, 2022. [URL: https://arxiv.org/abs/2206.14854](https://arxiv.org/abs/2206.14854)
- 8 A. Fishman, **A. Murali**, C. Eppner, B. Peele, B. Boots, and D. Fox, “Motion policy networks,” in *Conference on Robot Learning (CoRL)*, 2022. [URL: https://mpinets.github.io/](https://mpinets.github.io/)
- 9 **A. Murali**, W. Liu, K. Marino, S. Chernova, and A. Gupta, “Same object, different grasps: Data and semantic knowledge for task-oriented grasping,” in *Conference on Robot Learning (CoRL)*, 2020. [URL: https://arxiv.org/abs/2011.06431](https://arxiv.org/abs/2011.06431)
- 10 **A. Murali**, A. Mousavian, C. Eppner, C. Paxton, and D. Fox, “6-dof grasping for target-driven object manipulation in clutter,” in *IEEE International Conference on Robotics and Automation (ICRA)*, Best Manipulation Paper Award Finalist, 2020. [URL: https://arxiv.org/abs/1912.03628](https://arxiv.org/abs/1912.03628)
- 11 **A. Murali** et al., “Pyrobot: An open-source robotics framework for research and benchmarking,” 2019. arXiv: 1906.08236. [URL: https://arxiv.org/abs/1906.08236](https://arxiv.org/abs/1906.08236)
- 12 T. Chen, **A. Murali**, and A. Gupta, “Hardware conditioned policies for multi-robot transfer learning,” in *Neural Information Processing Systems (NeurIPS)*, 2018. [URL: https://arxiv.org/abs/1811.09864](https://arxiv.org/abs/1811.09864)
- 13 A. Gupta, **A. Murali**, D. Gandhi, and L. Pinto, “Robot learning in homes: Improving generalization and reducing dataset bias,” in *Neural Information Processing Systems (NeurIPS)*, 2018. [URL: https://arxiv.org/abs/1807.07049](https://arxiv.org/abs/1807.07049)
- 14 **A. Murali**, Y. Li, D. Gandhi, and A. Gupta, “Learning to grasp without seeing,” in *International Symposium on Experimental Robotics (ISER)*, 2018. [URL: https://arxiv.org/abs/1805.04201](https://arxiv.org/abs/1805.04201)
- 15 **A. Murali**, L. Pinto, D. Gandhi, and A. Gupta, “CASSL: Curriculum accelerated self-supervised learning,” in *IEEE International Conference on Robotics and Automation*, 2018. [URL: https://arxiv.org/abs/1708.01354](https://arxiv.org/abs/1708.01354)
- 16 **A. Murali** et al., “Tsc-dl: Unsupervised trajectory segmentation of multi-modal surgical demonstrations with deep learning,” in *IEEE International Conference on Robotics and Automation (ICRA)*, May 2016. [URL: http://berkeleyautomation.github.io/tsc-dl/](http://berkeleyautomation.github.io/tsc-dl/)
- 17 S. McKinley et al., “A single-use haptic palpation probe for locating subcutaneous blood vessels in robot-assisted minimally invasive surgery,” in *Conference on Automation Science and Engineering (CASE)*, 2015. [URL: http://berkeleyautomation.github.io/surgical-tools/](http://berkeleyautomation.github.io/surgical-tools/)
- 18 **A. Murali** et al., “Learning by observation for surgical subtasks: Multilateral cutting of 3d viscoelastic and 2d orthotropic tissue phantoms,” in *IEEE International Conference on Robotics and Automation*

(ICRA), Best Medical Robotics Paper Award Finalist, May 2015.  URL:  
<https://www.youtube.com/watch?v=beVWB6NtAaA>

- 19 K. Nichols, **A. Murali**, S. Sen, K. Goldberg, and A. Okamura, "Models of human-centered automation in a debridement task," in *International Conference on Intelligent Robots and Systems (IROS)*, 2015.
- 20 K. Shamaei et al., "A paced shared-control teleoperated architecture for supervised automation of multilateral surgical tasks," in *International Conference on Intelligent Robots and Systems (IROS)*, 2015.
- 21 J. Mahler et al., "Learning accurate kinematic control of cable-driven surgical robots using data cleaning and gaussian process regression," in *Conference on Automation Science and Engineering (CASE)*, 2014.

## Journal Articles

- 1 **A. Murali** and S. Subbiah, "A morphological study on direct polymer cast micro-textured hydrophobic surfaces," *Surface and Coatings Technology*, vol. 205, pp. 4764–4770, 2011.
- 2 N. Yakovlev et al., "Secondary ion mass spectrometry of macromolecules loading in individual polyelectrolyte multilayer microcapsules," Jul. 2011.

## Academic Experience

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- 2016 – 2020  **Research Assistant** Carnegie Mellon University. PhD Advisor: Abhinav Gupta.
- 2014 – 2016  **Research Assistant** Berkeley Artificial Intelligence Lab. Advisors: Ken Goldberg and Pieter Abbeel.
- 2013  **Research Assistant** Lawrence Berkeley National Lab. Advisors: Ali Javey.
- 2009 – 2010  **Research Assistant** Nanyang Technological University. Advisor: Sathyan Subbiah.
- 2010  **Research Science Institute** Massachusetts Institute of Technology.

## References

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Available on Request