

Nishanth J. Kumar

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EDUCATION

- Massachusetts Institute of Technology** - S.M. and Ph.D. in EECS Cambridge, MA | 09/2021 -
- **GPA: 5.00/5.00.** Research: Combining learning and planning for long-horizon, complex robotics and general agentic decision-making. Advisors: Tomás Lozano-Pérez and Leslie Kaelbling.
 - **Selected Coursework:** Robotic Manipulation, Theory of Computation, Computational Sensorimotor Learning.
- Brown University** - Sc.B. in Computer Engineering with Honors Providence, RI | 09/2017 - 05/2021
- **GPA: 3.95/4.00.** Named *Outstanding Senior* for graduating as the top student in my concentration. Research advisors: Stefanie Tellex, George Konidaris.
 - **Selected Coursework:** Machine Learning, Computer Vision, Learning and Sequential Decision Making, Topics in 3D Vision and Deep Learning.

INDUSTRY EXPERIENCE

- Research Intern- NVIDIA** [[website](#)] Seattle, WA | Summer 2024
- Working on combining internet-scale generative models with planning and decision-making algorithms to enable robust long-horizon behavior. Managers: Caelan Garrett, Fabio Ramos, Dieter Fox.
- Research Intern - The AI Institute** [[website](#)] Cambridge, MA | 11/2022 -
- Worked on several projects (e.g. [planning to practice](#)) combining Task and Motion Planning (TAMP) with a variety of pretrained large models and learning algorithms to enable real-world Boston Dynamics Spot robots to solve challenging long-horizon tasks. Manager: Jennifer Barry.
- Research Intern - Vicarious AI (now part of DeepMind)** [[website](#)] Union City, CA | Summer 2021
- Led development of an open-source framework [[link](#)] for efficient inference on Probabilistic Graphical Models (PGM's) in JAX. Journal paper submitted to JMLR [[paper](#)]. Managers: Stannis Zhou, Miguel Lázaro-Gredilla.
- Research Intern Uber ATG (now Waabi AI)** [[website](#)] Toronto, ON | Summer 2020
- Led an independent research project [[link](#)] on Active Learning to improve sample-efficiency and reduce data-labelling costs for a key neural network model. Managers: Sean Segal, Raquel Urtasun.

AWARDS AND HONORS

- **RSS Workshop on Learning for TAMP Best Paper Award** 2024
- **Qualcomm Innovation Fellowship Finalist** (1 of 46 teams nationwide) 2022
- **NSF GRFP Fellow** 2021
- **CRA Outstanding Undergrad Research Award Finalist** (1 of 23 nationwide) 2021
- **Goldwater Scholarship** (1 of 396 nationwide) 2020
- **Heidelberg Laureate** 2020

SELECTED PUBLICATIONS

- **Practice makes Perfect: Planning to Learn Skill Parameter Policies.** N. Kumar*, T. Silver*, W. McClinton, L. Zhao, S. Proulx, T. Lozano-Pérez, L. Kaelbling, J. Barry. RSS, 2024.
 - **Learning Efficient Abstract Planning Models that Choose What to Predict.** N. Kumar*, W. McClinton*, R. Chitnis, T. Silver, T. Lozano-Pérez, L. Kaelbling. CoRL, 2023.
 - **Predicate Invention for Bilevel Planning.** T. Silver*, R. Chitnis*, N. Kumar, W. McClinton, T. Lozano-Pérez, L. Kaelbling, J. Tenenbaum. AACL, 2023 (Oral).
 - **Just label what you need: Fine-grained active selection for perception and prediction through partially labelled scenes.** S. Segal*, N. Kumar*, S. Casas, W. Zeng, M. Ren, J. Wang, and R. Urtasun. CoRL, 2021.
 - **Building plannable representations with mixed reality.** E. Rosen, N. Kumar, N. Gopalan, D. Ullman, G. Konidaris, and S. Tellex. IROS, 2020.
- (* indicates equal contribution)

SKILLS & INTERESTS

- **Programming Skills**
 - **Over 5000 lines:** Python.
 - **Over 1000 lines:** PyTorch, Bash, JAX, C, Robot Operating System (ROS), Java, MATLAB, LaTeX.
 - **Familiar:** TensorFlow, OpenCV, Verilog, Scala, OCaml, Racket, MySQL.
- **Miscellaneous Skills and Interests:** Fiction Writing, Blogging, Basketball, Public Speaking, Philosophy.