Nishanth J. Kumar

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EDUCATION

Massachusetts Institute of Technology – Ph.D. in EECS — Cambridge, MA | 2021 – 2026 (expected)

- Focus on Artificial Intelligence (AI), Machine Learning (ML) and Robotics. Member of the `Learning and Intelligent Systems Group' advised by Profs. Leslie Kaelbling and Tomás Lozano-Pérez.

Brown University – Sc.B. in Computer Engineering — Providence, RI | 2017 – 2021

- Focus on Robotics and AI. GPA: 3.95. Graduating with *magna cum laude* and honors thesis. Named *Outstanding Senior in Computer Engineering* for being the top student in my concentration.
- **Relevant Coursework**: Machine Learning*, Computer Vision*, Topics in 3D Vis. and Deep Learning*, Learning and Sequential Decision Making*, Topics in Collaborative Robotics*, Image Understanding, Intro. to Computer Systems, Computer Architecture, Probability and Stats., Linear Algebra, Multivariable Calculus. (* indicates Graduate Level course)

EXPERIENCE

Undergraduate Research Assistant – BigAI [website] — Providence, RI | 2017 – 2021

- Worked on projects at the intersection of Robotics, AI and ML under Profs. Stefanie Tellex, George Konidaris and Michael Littman.
- Helped author 5 different conference publications and lead collaboration with Mitsubishi Electric Research Labs (MERL).

Meta-Undergraduate Research Assistant – Brown CS [website] — Providence, RI | 2020 – 2021

- Promoted undergrad CS research by organizing informational events, serving as a student-faculty liaison, and pioneering new initiatives.
- Held weekly office hours to answer student questions and provide personal guidance on getting involved with research.

Research Intern – Uber ATG — Toronto, ON | Summer, 2020

- Led an independent research project on Active Learning to improve sample-efficiency and reduce data-labelling costs for a neural network model. Supervised by Chief Scientist Prof. Raquel Urtasun.
- Implemented existing and novel Active Learning algorithms in Python with PyTorch and integrated these into a large codebase.
- Research paper in submission to ICCV 2021. All other details under NDA.

Head Teaching Assistant – Brown CS — Providence, RI | Fall, 2019

- Managed a staff of 5 for Prof. Michael Littman's Graduate Level Reinforcement Learning course with 82 students.
- Helped oversee final projects that resulted in 18 accepted papers at the 2019 NeurIPS Reproducibility Workshop.

AWARDS AND HONORS

- **NSF GRFP Fellow**. Awarded Berkeley Fellowship (declined) — 2021
- **Elected to Tau Beta Pi Honors Society** — 2021
- **CRA Outstanding Undergrad Research Award Finalist** (1 of 23 nationwide) — 2021
- **Goldwater Scholarship** — 2020
- **Heidelberg Laureate** — 2020
- **CRA Outstanding Undergrad Research Award Honorable Mention** (1 of 100 nationwide) — 2020
- **Machine Intelligence Conference Invited Speaker** — 2019
- **Ivy-League Undergrad Research Symposium 'Best Plenary Presentation'** (top conference honor) — 2018
- **Hack@Brown 'Best Hardware Hack'** — 2018
- **YHack 'Best Finance Hack'** — 2017

SELECTED PUBLICATIONS

- **Task scoping: Building goal-specific abstractions for planning in complex domains**. **N. Kumar***, M. Fishman*, N. Danas, M. Littman, S. Tellex, and G. Konidaris. arXiv, 2020.
- **Building plannable representations with mixed reality**. E. Rosen, **N. Kumar**, N. Gopalan, D. Ullman, G. Konidaris, and S. Tellex. IEEE IROS, 2020.
- **Learning deep parameterized skills from demonstration for re-targetable visuomotor control**. **N. Kumar***, J. Chang*, S. Hastings, A. Gokaslan, D. Romeres, D. Jha, D. Nikovski, G. Konidaris, and S. Tellex. arXiv, 2019.
- **Multi-object search using object-oriented pomdps**. A. Wandzel, Y. Oh, M. Fishman, **N. Kumar**, L. LS Wong, and S. Tellex. IEEE ICRA, 2019.

SKILLS & INTERESTS

- **Programming Skills**
  - **Over 5000 lines:** LaTex, Python, Bash**.**
  - **Over 1000 lines:** PyTorch, Robot Operating S, C, Java, MATLAB, Verilog, Scala.
  - **Familiar:** TensorFlow, OpenCV, OCaml, Racket, MySQL.
- **Engineering Skills**: Circuit Design and Testing, FPGA Use, 3D Printing, Laser Cutting, Metalworking.
- **Miscellaneous Skills and Interests:** Fiction Writing, Copywriting, Public Speaking, College Counselling, Personal Finance and Investing.