Sathwik Karnik

Address: Durand Building, 496 Lomita Mall, Stanford, CA 94305 **Contact:** sathwik@stanford.edu

EDUCATION

Stanford University — **Stanford, CA**
Ph.D. in Aeronautics and Astronautics, Advised by Prof. Somil Bansal — 2025 - Present

Massachusetts Institute of Technology (MIT) — **Cambridge, MA**
M.Eng. in Electrical Engineering & Computer Science with a Concentration in Artificial Intelligence — 2022 - 2023
S.B. in Electrical Engineering & Computer Science and Mathematics (Double Major) — 2018 - 2022
GPA: 5.0/5.0

PUBLICATIONS

Karnik, S.*, Hong, Z.*, Abhangi N.*, Lin, Y., Wang, T., Agrawal, P. (2024). Red Teaming Language-Conditioned Robot Models via Vision Language Models. 2024 Neural Information Processing Systems (NeurIPS) Workshop on Safe Generative AI.

Hong, Z., Kumar, A., **Karnik, S.**, Bhandwaldar, A., Srivastava, A., Pajarinen, J., Laroche, R., Gupta, A., Agrawal, P. (2023). Beyond Uniform Sampling: Offline Reinforcement Learning with Imbalanced Datasets. 2023 Neural Information Processing Systems (NeurIPS) Conference.

Drori, I. et al (including **Karnik, S.**) (2023). From Human Days to Machine Seconds: Automatically Answering and Generating Machine Learning Final Exams. 2023 ACM SIGKDD Conference on Knowledge Discovery and Data Mining.

Karnik, S., Lozano-Perez, T., Kaelbling, L.P., Goretkin, G. (2022). Fully Persistent Spatial Data Structures for Efficient Queries in Path-Dependent Motion Planning Applications. 2022 International Conference on Robotics and Automation (ICRA).

CONFERENCE ABSTRACTS

da Silva, A. M., **Karnik, S.**, Castellanos, P. (2022). Evidential Deep Learning for Polarimeter Data Assimilation. 2022 Advancement of POLarimetric Observations (APOLO) Conference; 2022 Aug 9-12; Washington, D.C.

Karnik, S.*, Ma, S.*, Shao, E.* (2018). A Novel Algorithm to Compute the Cutting Sequence of Billiard Trajectories in Equilateral Triangles. 2018 MAA Undergraduate Poster Session, Joint Mathematics Meetings. 2018 Jan 10-13; San Diego, CA.

PREPRINTS

Wang, H., **Karnik, S.**, Lim, B., Bansal, S. (2025). Using Vision Language Models as Closed-Loop Symbolic Planners for Robotic Applications: A Control-Theoretic Perspective. arXiv:2511.07410. Under review.

Karnik, S., Bansal, S. (2025). Preemptive Detection and Steering of LLM Misalignment via Latent Reachability. arXiv:2509.21528. Under review.

Karnik, S. (2017). On the Classification and Algorithmic Analysis of Carmichael Numbers. arXiv:1702.08066. Presented at the International Science and Engineering Fair (ISEF) 2017.

INDUSTRY EXPERIENCE

Applied Intuition — **Mountain View, CA**
Software Engineer — 07/2023 – 05/2025
- Developed a performant data-oriented simulator in C++ for autonomous systems.

Jump Trading — **Singapore, Singapore and Chicago, IL**
Quantitative Research Intern — 06/2022 – 08/2022
- Developed predictive models for trading strategies on Indian futures and options and US equities.

NASA Goddard Space Flight Center — **Greenbelt, MD (remote)**
Machine Learning Research Intern — 01/2022 – 06/2022
- Implemented deep evidential regression using TensorFlow for improved model error estimation of aerosol optical depth (AOD).

Uber Advanced Technologies Group (ATG) — **Pittsburgh, PA (remote)**
Software Engineering Intern — 06/2020 – 08/2020
- Designed and developed nearest-neighbor data structures and algorithms for spatial indexing in C++.
- Developed optimized spatial indexing via parallel GPU computation using CUDA C++.

Dexai Robotics **Somerville, MA**
Robotics Software Engineering Intern 06/2019 – 08/2019
· Developed the multi-robot communication and collision-free planning features in C++ for the company product.

TEACHING EXPERIENCE

Computational Sensorimotor Learning (6.8200, previously 6.484) at MIT **Spring 2023**
· Teaching Assistant

Introduction to Machine Learning (6.3900, previously 6.036) at MIT **2019 - 2022**
· Teaching Assistant (2021-2022)
· HKN Tutor (2020-2021)
· Laboratory Assistant (Fall 2019)

SERVICE

Reviewer: ICLR, ICRA, IEEE RA-L, NeurIPS Safe Generative AI Workshop, STACS 2025 - Present
Hack-Nation Global AI Hackathon, in collaboration with the MIT Sloan AI Club, Organizer and Judge 2025

SELECTED AWARDS

Stanford Graduate Fellowship in Science & Engineering (3-year fellowship) 2025
Inducted Member of MIT IEEE Eta Kappa Nu (HKN) Society 2021
MIT Quick Undergraduate Research and Innovation Scholar 2020
HackMIT Top Ten Overall 2019
HackMIT QVC Sponsor Prize Runner-Up 2018
William Lowell Putnam Mathematical Examination Top 500, Rank 251.5 2018
Joint Mathematics Meetings (AMS and MAA) Undergraduate National Poster Session Presenter 2018
Intel International Science and Engineering Fair (ISEF) 4th Place Grand Award in Math 2017
Intel ISEF 1st Place in Math Air Force Research Laboratory Award 2017
25th National Geographic Bee Champion 2013

ASSOCIATIONS

IEEE Eta Kappa Nu (HKN) Society 2021 - Present
National Geographic Society (awarded lifetime membership as winner of 2013 National Geographic Bee) 2013 - Present