Kasra Torshizi

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Education

University of Maryland, College Park — Jan 2025 - 2029
PhD in Computer Science — *Advisor: Dr. Pratap Tokekar*

University of Maryland, College Park — Aug 2023 – Dec 2024
Master of Science in Computer Science — *3.89 GPA*

University of Maryland, College Park — Aug 2020 – May 2023
Bachelor of Science in Computer Science, Minor in Mathematics — *3.83 GPA*

Research Interests

Robotics, Reinforcement Learning, Imitation Learning, Optimal Control, POMDPs, Constrained Optimization, Diffusion Planners, Perception

Publications

[**C.5**] Kasra Torshizi*, Chak Lam Shek*, Khuzema Habib, Guangyao Shi, Pratap Tokekar, Troi Williams. **Contextual Neural Moving Horizon Estimation for Robust Quadrotor Control in Varying Conditions**. In Review at ICRA 2026. *Equal Contribution

[**C.4**] Anukriti Singh, Kasra Torshizi, Khuzema Habib, Kelin Yu, Ruohan Gao, Pratap Tokekar. **AFFORD2ACT: Affordance-Guided Automatic Keypoint Selection for Generalizable and Lightweight Robotic Manipulation**. In review at ICRA 2026.

[**C.3**] Chak Lam Shek*, Kasra Torshizi*, Troi Williams, Pratap Tokekar. **When to Localize?: A Risk-Constrained Reinforcement Learning Approach**. American Control Conference (ACC), 2025. *Equal Contribution

[**C.2**] Troi Williams, Kasra Torshizi, Pratap Tokekar. **Where to Localize?: A POMDP Approach**. IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR), 2024.

[**C.1**] James Larisch, Waqar Aqeel, Michael Lum, Yaelle Goldschlag, Kasra Torshizi, Leah Kannon, Yujie Wang, Taejoong Chung, Dave Levin, Bruce M Maggs, Alan Mislove, Bryan Parno, Christo Wilson. **Hammurabi: A Framework for Pluggable, Logic-Based x.509 Certificate Validation Policies**. ACM SIGSAC Conference on Computer and Communications Security, 2022.

Experience

Graduate Research Assistant — Aug. 2025 – Present
The Maryland Autonomous Technologies Research Innovation and eXploration (MATRIX) Lab — *California, MD*

- Developing a control loop for autonomous UAV landings on Navy vessels, focusing on robustness in turbulent and low-visibility conditions
- Work part of the MATRIX Lab Seed Grant
- Mentors: Dr. Donald Costello and Dr. Jamison Watson

Graduate Research Assistant — Nov. 2023 – Present
University of Maryland - The Robotics Algorithms and Autonomous Systems (RAAS) Lab — *College Park, MD*

- In Progress Research: Investigating how the multi-modal representation of diffusion models can serve as a risk-conditioned prior within model predictive control.

Software Engineering Intern — May. 2023 – Aug. 2023
Echostar Corporation — *Gaithersburg, MD*

Undergraduate Research Assistant — May. 2021 – Nov. 2022
University of Maryland - Breakerspace Lab — *College Park, MD*

Software Engineering Intern — May. 2022 – Aug. 2022
Echostar Corporation — *Gaithersburg, MD*

Grants & Funding

- FY26 MATRIX Lab Seed Grant - $75,000

Teaching (TA)

- CMSC351: Algorithms - Fall '22, Summer '24, Summer '25
- CMSC420: Advanced Data Structures - Spring '23
- CMSC421: Artificial Intelligence - Spring '25
- DATA602: Graduate Data Science - Fall '24

Mentoring

- Khuzema Habib - MS Robotics at UMD.
- Aarnav Kapoor - Undergrad CS at UMD.
- Leo Du - Undergrad CS at UMD.
- Suraj Modur - Undergrad CS at UMD. Now MS CS at Georgia Tech.

Presentations

- 2025 Maryland Robotics Center Research Symposium (Lightning & Poster)
- 2024 Maryland Robotics Center Research Symposium (Poster)

Conference Reviewer

SSRR '24, MRS '25, ICRA '26

Graduate Coursework

Computational Geometry, Decision-Making for Robotics, Computational Imaging, Numerical Optimization, Natural Language Processing, Human-Computer Interaction, Multi-Modal Foundation Models, Generative AI Agents

Technical Frameworks

Languages: Python, Java, C/C++, SQL, JavaScript, HTML/CSS, OCaml, Prolog, Bash
Libraries: Numpy, PyTorch, Matplotlib, SciPy, Pandas, OpenCV, Gym, Python Multiprocessing