Bhrij Patel

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RESEARCH INTERESTS

- Alignment and Personalization for AI Systems, including Multi-Agent Systems

- LLM-based Evaluators, particularly for Text-based Optimization

- Sample Efficient Statistical Optimization for Reinforcement Learning with Sparse Rewards

EDUCATION

University of Maryland, College Park
Ph.D. in Computer Science (Expected: Dec 2026)
Co-Advised by Dinesh Manocha and Amrit Singh Bedi (UCF)

University of Maryland, College Park
Master in Computer Science (May 2024)
Co-Advised by Dinesh Manocha and Amrit Singh Bedi (UCF)

Duke University, Durham, NC
Bachelor of Science in Computer Science & Mathematics, Minor in Creative Writing (May 2022)
Advised by Cynthia Rudin

AWARDS

- **2021 Duke DataFest**: Judges' Pick Award

- **2021 NC State Datathon**: 3rd Place Team

- **2020 COMAP Mathematical Contest in Modeling**: Meritorious Winner

- **2019 Duke University Datathon**: Runner-Up Team

PUBLICATIONS and PREPRINTS

- *AIME: AI System Optimization via Multiple LLM Evaluators.*
  Bhrij Patel, Souradip Chakraborty, Wesley A. Suttle, Mengdi Wang, Amrit Singh Bedi, Dinesh Manocha
  arXiv, preprint (2024)

- *Multi-LLM QA with Embodied Exploration*
  Bhrij Patel, Vishnu Sashank Dorbala, Amrit Singh Bedi, Dinesh Manocha
  arXiv, preprint (2024)

- *Right Place, Right Time! Towards ObjectNav for Non-Stationary Goals*
  Vishnu Sashank Dorbala*, **Bhrij Patel***, Amrit Singh Bedi, Dinesh Manocha
  arXiv, preprint (2024)

- *CCE: Sample Efficient Sparse Reward Policy Learning for Robotic Navigation via Confidence-Controlled Exploration*
  Bhrij Patel, Kasun Weerakoon, Wesley A. Suttle, Alec Koppel, Brian M. Sadler, Tianyi Zhou, Amrit Singh Bedi, Dinesh Manocha
  arXiv, preprint (2024)

- *Towards Global Optimality for Practical Average Reward Reinforcement Learning without Mixing Time Oracles*

Bhrij Patel, Wesley A. Suttle, Alec Koppel, Vaneet Aggarwal, Brian M. Sadler, Amrit Singh Bedi, Dinesh Manocha
International Conference of Machine Learning, 2024

- *Beyond Exponentially Fast Mixing in Average-Reward Reinforcement Learning via Multi-Level Monte Carlo Actor-Critic*
Wesley A. Suttle*, Amrit Singh Bedi*, **Bhrij Patel** Brian M. Sadler, Alec Koppel, Dinesh Manocha
International Conference of Machine Learning, 2023

- *Interpretable, Fair and Accurate Machine Learning for Criminal Recidivism Prediction*
Caroline Wang*, Bin Han*, **Bhrij Patel**, Cynthia Rudin
Journal of Quantitative Criminology, 2022

*Denotes Equal Contribution

PRESENTATIONS

- *In Pursuit of Interpretable, Fair and Accurate Machine Learning for Criminal Recidivism Prediction*
Caroline Wang, Bin Han, **Bhrij Patel**, Feroze Mohideen
Duke CS Showcase 2020

- Neural Network Dimension Reduction of Data with Topological Constraint
Bhrij Patel Duke Opportunities in Math 2020

- Comparing Black-box and Interpretable ML models for Criminal Recidivism Prediction
Bhrij Patel
Duke CS+ 2019

TEACHING

- Teaching Assistant, CMSC 335: Web Application Development with JavaScript, University of Maryland, College Park (Jan 2024-Current)

- Teaching Assistant, CMSC 131: Introduction to Object Oriented Programming, University of Maryland, College Park (Aug-Dec 2023)

- Teaching Assistant, CS 671: Graduate Machine Learning, Duke University (Aug-Dec 2021)

- Teaching Assistant, CS 371: Undergraduate Data Science, Duke University (Jan-May 2021)

- Teaching Assistant, CS 371: Undergraduate Machine Learning, Duke University (Aug-Dec 2020)

- Math Help Room Tutor, Linear Algebra, Duke University (Aug 2019-May 2020)