Rohan Chandra

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Publications on Google Scholar
Keywords: Multi-Robot Systems, Human-Robot Interaction, Social Navigation

Education

Ph.D. in Computer Science — **University of Maryland, College Park**
Advisor: Dr. Dinesh Manocha — *August 2018 - May 2022*
Dissertation: *Towards Autonomous Driving in Dense, Heterogeneous, and Unstructured Traffic*
Dissertation Committee: Dr. Dinesh Manocha, Dr. Yiannis Aloimonos, Dr. Pratap Tokekar, Dr. Mac Schwager, Dr. Derek Paley

M.S. in Computer Science — **University of Maryland, College Park**
August 2016 - May 2018

Bachelor of Technology (B.Tech) in ECE — **Delhi Technological University, New Delhi**
August 2012 - May 2016

Employment

University of Virginia — **Charlottsville, VA**
Assistant Professor of Computer Science — *June 2024 - Present*

University of Texas, Austin — **Austin, TX**
Postdoctoral Research Fellow — *June 2022 - June 2024*
Conducting research at the intersection of multi-agent systems, robotics, and control theory.

NVIDIA — **Santa Clara, CA**
Applied Research Intern, Autonomous Driving (Prediction) — *Summer'21 (Remote)*
Worked on ego-vehicle trajectory and behavior prediction via ego-goal conditioning, helping navigation in hard cases like U-turns and left turns.

Scholarships, Awards, and Honors

- **(2026)** Selected for **AAAI 2026 New Faculty Highlights Program**.
- **(2024)** Won the **Drones 2023 Young Investigator Award**.
- **(2023)** Won the **Best Paper/Presentation Award** at the IROS 2023 Workshop on Advances in Multi-Agent Learning for iPlan.
- **(2023)** Won the **Seoul National University (SNU) Ph.D. Talk Award** at the IROS 2023 Workshop on Advances in Multi-Agent Learning - Coordination, Perception, and Control.
- **(2023)** Finalist for the **Charles A. Caramello Distinguished Dissertation Award**. A university level award by The University of Maryland, College Park across all graduate disciplines.
- **(2023)** Selected as one of 10 speakers for the **Microsoft Future Leaders in Robotics and AI**, a joint University of Maryland and Microsoft Robotics and Diversity Initiative, sponsored by Microsoft DC Metro Engineering Site.
- **(2023)** (declined) Selected for the **Rising Stars in AI Symposium 2023** Speaker Series at KAUST, geared towards young researchers who have recently published significant works at leading AI venues.
- **(2022)** Finalist for **UMD Innovation of the Year Award** by Innovate UMD for our work on DeepFake Detection.
- **(2022)** Selected as one of 30 **RSS Pioneers** at the Robotics: Science and Systems (RSS) conference, held in New York.
- **(2021)** Finalist for **UMD Innovation of the Year Award** by Innovate UMD for our work on Multimodal and Context-Aware Emotion Perception.
- **(2021)** Selected as one of 30 participants for the 3-semester **Future Faculty Fellow** program at the University of Maryland to prepare doctoral students to achieve career-long success in academia.
- **(2020)** Awarded the **Summer Research Fellowship** by The Graduate School at The University of Maryland, College Park.

Publications

2025

1. Kefan Song, Jin Yao, Runnan Jiang, **Rohan Chandra**, Shangtong Zhang. "Towards Large Language Models that Benefit for All: Benchmarking Group Fairness in Reward Models." Reinforcement Learning Conference ***(RLC)***, 2025.
2. **Rohan Chandra**, Haresh Karnan, Negar Mehr, Peter Stone, Joydeep Biswas. "Multi-Agent Inverse Reinforcement Learning in Real World Unstructured Pedestrian Crowds." IEEE/RSJ Conference on Intelligent Robots and Systems ***(IROS)***, 2025.
3. **Rohan Chandra**, Vrushabh Zinage, Efstathios Bakolas, Peter Stone, Joydeep Biswas. "Deadlock-free, Safe, and

Decentralized Multi-Robot Navigation in Social Mini-Games via Discrete-Time Control Barrier Functions." ***Autonomous Robots***, 2025.

4. Anthony Francis, Claudia Perez-d'Arpino, Chengshu Li, Fei Xia, Alexandre Alahi, Rachid Alami, Aniket Bera, Abhijat Biswas, Joydeep Biswas, **Rohan Chandra**, others. "Principles and guidelines for evaluating social robot navigation algorithms" Transactions on Human-Robot Interaction ***(THRI)***, 2025.
5. Vrushabh Zinage, Abhishek Jha, **Rohan Chandra**, Efstathios Bakolas. "Decentralized Safe and Scalable Multi-Agent Control under Limited Actuation." International Conference on Robotics and Automation ***(ICRA)***, 2025.
6. Srikar Gouru, Siddharth Lakkoju, **Rohan Chandra**. "LiveNet: Robust, Minimally Invasive Multi-Robot Control for Safe and Live Navigation in Constrained Environments." 7th Annual Learning for Dynamics & Control Conference ***(L4DC)***, 2025.
7. Vagul Mahadevan, Shangtong Zhang, **Rohan Chandra**. "GameChat: Multi-LLM Dialogue for Safe, Agile, and Socially Optimal Multi-Agent Navigation in Constrained Environments." IEEE International Conference on Multirobot Systems *(**MRS**)*, 2025.
8. Nilesh Suriyarachchi, **Rohan Chandra**, Arya Anantula, John S Baras, Dinesh Manocha. "GAMEOPT+: Improving Fuel Efficiency in Unregulated Heterogeneous Traffic Intersections via Optimal Multi-agent Cooperative Control." IEEE International Conference on Multirobot Systems *(**MRS**)*, 2025.
9. Zixuan Xie, Xinyu Liu, **Rohan Chandra**, Shangtong Zhang. "Finite Sample Analysis of Linear Temporal Difference Learning with Arbitrary Features." Advances in Neural Information Processing Systems *(**NeurIPS**)*, 2025.
10. Jiuqi Wang, **Rohan Chandra**, Shangtong Zhang. "Towards Provable Emergence of In-Context Reinforcement Learning." Advances in Neural Information Processing Systems *(**NeurIPS**)*, 2025.

2024

1. Chen Tang, Ben Abbatematteo, Jiaheng Hu, **Rohan Chandra**, Roberto Martin-Martin, Peter Stone. "Deep Reinforcement Learning for Robotics: A Survey of Real-World Successes" ***Annual Review of Control, Robotics, and Autonomous Systems***, 2024.
2. Jennifer Williams, Eike Schneiders, Henry Card, Tina Seabrooke, Beatrice Pakenham-Walsh, Tayyaba Azim, Lucy Valls-Reed, Ganesh Vigneswaran, John Robert Bautista, **Rohan Chandra**, Arya Farahi. "Predicting Acute Pain Levels Implicitly from Vocal Features" ***(INTERSPEECH)***, 2024.
3. Amir Hossain Raj, Zichao Hu, Haresh Karnan, **Rohan Chandra**, Amirreza Payandeh, Luisa Mao, Peter Stone, Joydeep Biswas, Xuesu Xiao. "Targeted Learning: A Hybrid Approach to Social Robot Navigation." International Conference on Robotics and Automation ***(ICRA)***, 2024.
4. Vrushabh Zinage, **Rohan Chandra**, Efstathios Bakolas. "Disturbance Observer-based Robust Integral Control Barrier Functions for Nonlinear Systems with High Relative Degree." American Control Conference ***(ACC)***, 2024 (oral).
5. **Rohan Chandra**, Zayne Sprague, Joydeep Biswas. "SOCIALGYM 2.0: Simulator for Multi-Agent Social Robot Navigation in Shared Human Spaces." Association for the Advancement of Artificial Intelligence ***(AAAI)***, *demo track*, 2024.

2023

1. Xiyang Wu, **Rohan Chandra**, Tianrui Guan, Amrit Singh Bedi, Dinesh Manocha. "iPLAN: Intent-Aware Planning in Heterogeneous Traffic via Distributed Multi-Agent Reinforcement Learning." Conference on Robot Learning ***(CoRL)***, 2023 (oral).
2. **Rohan Chandra**, Rahul Maligi, Arya Anantula, Joydeep Biswas. "SOCIALMAPF: Optimal and Efficient Multi-Agent Path Finding with Strategic Agents for Social Navigation." IEEE/RSJ Robotics and Automation Letters/International Conference on Intelligent Robots and Systems **(RA-L/IROS)**, 2023.
3. **Rohan Chandra**, Xijun Wang, Mridul Mahajan, Rahul Kala, Rishitha Palugulla, Chandrababu Naidu, Alok Jain, Dinesh Manocha. "METEOR: A Massive Dense & Heterogeneous Behavior Dataset for Autonomous Driving." IEEE Conference on Robotics and Automation ***(ICRA)***, 2023.

2022

1. Nilesh Suriyarachchi, **Rohan Chandra**, John S Baras, Dinesh Manocha. "GAMEOPT: Optimal Real-time Multi-Agent Planning and Control at Dynamic Intersections." IEEE Conference on Intelligent Transportation Systems ***(ITSC)***, 2022.
2. Tianrui Guan, Jun Wang, Shiyi Lan, **Rohan Chandra**, Zuxuan Wu, Larry Davis, Dinesh Manocha. "M3DeTR: Multi-representation, Multi-scale, Mutual-relation 3D Object Detection with Transformers." IEEE/CVF Winter Conference on Applications of Computer Vision ***(WACV)***, 2022.
3. Tianrui Guan, Divya Kothandaraman, **Rohan Chandra**, Dinesh Manocha. "GANav: Group-wise Attention Network for Classifying Navigable Regions in Unstructured Outdoor Environments." IEEE/RSJ Robotics and Automation Letters/International Conference on Intelligent Robots and Systems ***(RA-L/IROS)***, 2022.
4. **Rohan Chandra**, Dinesh Manocha. "GamePlan: Game-Theoretic Multi-Agent Planning with Human Drivers at Intersections, Roundabouts, and Merging." IEEE Robotics and Automation Letters/International Conference on Robotics and Automation ***(RA-L/ICRA)***, 2022.
5. **Rohan Chandra**, Mingyu Wang, Mac Schwager, Dinesh Manocha. "Game-Theoretic Planning for Risk-Aware Human Drivers." IEEE Conference on Robotics and Automation ***(ICRA)***, 2022.
6. Angelos Mavrogiannis, **Rohan Chandra**, Dinesh Manocha. "B-GAP: Behavior-Guided Action Prediction for Autonomous Navigation." IEEE/RSJ Robotics and Automation Letters/International Conference on Intelligent Robots and Systems

(RA-L/IROS), 2022.

2021

1. **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "Using Graph-Theoretic Machine Learning to Predict Human Driver Behavior." *IEEE Transactions on Intelligent Transportation Systems*, **(ITS)** 2021.
2. Divya Kothandaraman, **Rohan Chandra**, Dinesh Manocha. "BoMuDA: Boundless Multi-Source Domain Adaptive Segmentation in Unconstrained Environments." IEEE/CVF International Conference on Computer Vision ***(ICCV)***, 2021.
3. Divya Kothandaraman, **Rohan Chandra**, Dinesh Manocha. "SS-SFDA: Self-Supervised Source-Free Domain Adaptation for Road Segmentation in Hazardous Environments." IEEE/CVF International Conference on Computer Vision ***(ICCV)***, 2021.

2020

1. Trisha Mittal, Pooja Guhan, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "EmotiCon: Context-Aware Multimodal Emotion Recognition using Frege's Principle." IEEE/CVF Conference on Computer Vision and Pattern Recognition ***(CVPR)***, 2020.
2. Uttaran Bhattacharya, Trisha Mittal, **Rohan Chandra**, Tanmay Randhavane, Aniket Bera, Dinesh Manocha. "STEP: Spatial Temporal Graph Convolutional Networks for Emotion Perception from Gaits." Association for the Advancement of Artificial Intelligence ***(AAAI)***, 2020.
3. Trisha Mittal, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "M3ER: Multiplicative Multimodal Emotion Recognition Using Facial, Textual, and Speech Cues." Association for the Advancement of Artificial Intelligence ***(AAAI)*** (oral), 2020.
4. Uttaran Bhattacharya, Christian Roncal, Trisha Mittal, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "Take an Emotion Walk: Perceiving Emotions from Gaits Using Hierarchical Attention Pooling and Affective Mapping." European Conference on Computer Vision ***(ECCV)***, 2020.
5. Trisha Mittal, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "Emotions Don't Lie: An Audio-Visual Deepfake Detection Method Using Affective Cues." *ACM Multimedia* (**(MM)**), 2020.
6. AJ Sathyamoorthy, Jing Liang, Utsav Patel, Tianrui Guan, **Rohan Chandra**, Dinesh Manocha. "Densecavoid: Real-time navigation in dense crowds using anticipatory behaviors." IEEE Robotics and Automation Letters/International Conference on Robotics and Automation ***(RA-L/ICRA)***, 2020.
7. **Rohan Chandra**, Uttaran Bhattacharya, Trisha Mittal, Xiaoyu Li, Aniket Bera, Dinesh Manocha. "GraphRQI: Classifying Driver Behaviors Using Graph Spectrums." IEEE Conference on Robotics and Automation ***(ICRA)***, 2020.
8. **Rohan Chandra**, Uttaran Bhattacharya, Trisha Mittal, Aniket Bera, Dinesh Manocha. "RoadTrack: Tracking Road Agents in Dense and Heterogeneous Environments." IEEE Conference on Robotics and Automation ***(ICRA)***, 2020.
9. **Rohan Chandra**, Tianrui Guan, Srujan Panuganti, Trisha Mittal, Uttaran Bhattacharya, Aniket Bera, Dinesh Manocha. "Forecasting Trajectory and Behavior of Road-Agents using Spectral Clustering in Graph-LSTMs." IEEE/RSJ Robotics and Automation Letters/International Conference on Intelligent Robots and Systems ***(RA-L/IROS)***, 2020.
10. **Rohan Chandra**, Uttaran Bhattacharya, Trisha Mittal, Aniket Bera, Dinesh Manocha. "CMetric: A Driving Behavior Measure Using Centrality Functions." IEEE/RSJ Conference on Intelligent Robots and Systems ***(IROS)***, 2020.

2019

1. **Rohan Chandra**, Uttaran Bhattacharya, Aniket Bera, Dinesh Manocha. "TraPHic: Predicting Trajectories of Road-Agents in Dense and Heterogeneous Traffic." IEEE/CVF Conference on Computer Vision and Pattern Recognition ***(CVPR)***, 2019.
2. **Rohan Chandra**, Uttaran Bhattacharya, Aniket Bera, Dinesh Manocha. "DensePeds: Pedestrian Tracking in Dense Crowds Using Front-RVO and Sparse Features." IEEE/RSJ Conference on Intelligent Robots and Systems ***(IROS)***, 2019.
3. **Rohan Chandra**, Uttaran Bhattacharya, Christian Roncal, Aniket Bera, Dinesh Manocha. "RobustTP: End-to-End Trajectory Prediction for Heterogeneous Road-Agents in Dense Traffic with Noisy Sensor Inputs." ACM Computer Science in Cars Symposium ***(ACM CSCS)***, 2019.

Professional Activities

- **Workshop Chair/Co-Chair**:
  - RSS'23: Workshop on Multi-Agent Planning and Navigation in Challenging Environments.
  - IROS'23: The 2nd Workshop on Social Robot Navigation: Advances and Evaluation.
  - IROS'22: Behavior-driven Autonomous Driving in Unstructured Environments.
- **Program Committee**:
  - **Area Chair** for the **AAAI 2026**.
  - **Area Chair** for the **Reinforcement Learning Conference 2025**.
  - **Publicity and Social Media Chair** for the International Symposium on **Multi-Robot & Multi-Agent Systems 2023**.
  - ICCV'21 Workshop on Multi-Agent Interaction and Relational Reasoning.
  - Chaired the **Computer Vision for Autonomous Driving** session at **AAAI'23**.
  - Co-chaired the **Intelligent Transportation** session at **ICRA'22**.
- **Appointments:**
  - Associate Editor, IEEE T-RO (2026 - Present).

- Associate Editor, RA-L (2023 - Present).
- Field Editor, "Encyclopedia of GIS", Springer, August 2026.
- Guest Editor, MDPI Drones, Special Issue on Advances in Perception and Artificial Intelligence for Autonomous Vehicles.
- Reviewer for top vision, robotics, and AI conferences and journals (2018 - Present).

- **Grant Panel Review:**
  - NSF (2024).
- **Graduate Admissions Committee**:
  - 2022-2023: UT Austin CS.
  - 2017-2018: UMD CS
- **TTT Faculty Search Committee**:
  - 2024-2025: UVA.

Invited Talks

- (2024) **"Autonomous Driving in Unstructured Traffic Environments"** at the First Workshop on Intelligent Mobility in Unstructured Environments at ICPR 2024.
- (2023) **"Human-like Mobility to Deploy Autonomous Vehicles... Everywhere!"** at the Symposium on Indian Driving Simulation.
- (2023) **"Human-like Mobility to Deploy Autonomous Vehicles... Everywhere!"** at IAVVC'23: Workshop on Scenario and Behavior Diversity in Simulation for Autonomous Vehicle Validation (Keynote).
- (2023) **"SocialGym 2.0: Simulator for Multi-Agent Social Robot Navigation in Shared Human Spaces"** at IROS'23: The 2nd Workshop on Social Robot Navigation: Advances and Evaluation.
- (2023) **"Human-like Mobility to Deploy Robots... Everywhere!"** at IROS'23: Workshop on Integrated Perception, Planning, and Control for Physically and Contextually-Aware Robot Autonomy.
- (2022) **"Autonomous Driving in Unstructured Traffic Environments"** at IIIT-Hyderabad, IIIT-Delhi, IIT-Delhi.
- (2022) **"Autonomous Driving in Unstructured Traffic Environments"** at WACV'22: Hazard Perception in Intelligent Vehicles (HPIV) Workshop.
- (2021) **"Human Driver Behavior Modeling in Dense Urban Traffic with Applications to Planning and Navigation"** at RSS'21: Perception and Control for Autonomous Navigation in Crowded, Dynamic Environments Workshop.
- (2021) **"Modeling Human Driver Behavior in Dense Urban Traffic Environment Using Graph Theory"** at the 2021 Maryland Robotics Center Student Seminar.

Students Supervised

- Aneesh Chavan (Ph.D. 2025 -)
- Jaskirat Singh (Ph.D. 2025 -)
- Vignesh Rajagopal (Ph.D. 2025 -)
- Jeffrey Chen (Ph.D. 2024 -)
- Divya Kothandaraman (Ph.D. at UMD, currently Ph.D. at UMD, supervised by Dr. Dinesh Manocha)
- Tianrui Guan (M.S. at UMD, currently Ph.D. at UMD, supervised by Dr. Dinesh Manocha)
- Zayne Sprague (M.S. at UT Austin, currently Ph.D. at UT Austin, supervised by Dr. Greg Durrett)
- Xiyang Wu (Ph.D. at UMD, currently Ph.D., UMD, supervised by Dr. Dinesh Manocha)

Grants/Proposals

Central Virginia Node (CVN) - Commonwealth Cyber Initiative (CCI) — **$ 100,000**
Resilient and Adaptive Urban Transportation Routing for Emergency Management Services — *PI (my share: $28,000)*
2025-2026

School of Engineering, University of Virginia — **$ 10,000**
Robotics + X Symposium — *PI (my share: $10,000)*
2025

Trustworthy Autonomous Systems (TAS) Hub (UK Research and Innovation) — **£18,149.50**
TAME Pain: Trustworthy AssessMEnt of Pain - Listening Between the Lines — *Researcher Role*
2022-2024

Teaching

CS 2120: Discrete Mathematics and Theory - I — **University of Virginia**
Fall'25

CS 6501: Multi-Robot Navigation — **University of Virginia**
Spring'25

CS 2120: Discrete Mathematics and Theory - I **University of Virginia**
Fall'24

Teaching Assistant Experience

- **CMSC 250: Discrete Mathematics** **University of Maryland, College Park**
  Taught by Lecturer Jason Filippou *Fall'17 and Spring'18*
- **CMSC 131: Introduction to Programming** **University of Maryland, College Park**
  Taught by Lecturer Fawzi Emad *Spring'17*
- **CMSC 417: Computer Networks** **University of Maryland, College Park**
  Taught by Professor Ashok Agrawala *Fall'16*

Outreach and Community Service

- Participated in an **AI Panel** hosted by the Link Lab at the University of Virginia in Spring 2025.
- Demonstrated Texas Robotics autonomous mobile robot navigation to 20 high school and middle school students at the **Robotics Summer Camp 2023** at UT Austin.
- **Judged** the special awards category for AAAI at the **International Science and Engineering Fair 2023**. High school students from around the world competed for nearly $9M$ in awards, scholarships at Regeneron ISEF 2023.
- Volunteered for **STEM Girl Day** on the UT Austin Campus: UT Austin's national award-winning STEM Girl Day gives K-8th graders a chance to explore STEM through grade-appropriate, hands-on activities hosted by scientists, engineers, astronomers, and mathematicians.
- Participated in the **Future Leaders in Robotics and AI: Celebrating Diversity and Innovation Seminar Series** as part of the University of Maryland and Microsoft Robotics and Diversity Initiative. This is a nationwide online seminar series for Ph.D. students and postdoctoral researchers, especially underrepresented minorities and women. The seminar series will highlight the latest research and innovation in the field of robotics and AI. The series is intended to provide exposure and mentorship opportunities to the speakers, build a network of innovators across the country, and support the speakers' career planning.
- **AI4ALL 2021:** Led a 2 week project for 5-6 high school students. Introduced them to various aspects of machine learning and artificial intelligence.
- **NYU AI School 2021:** Teaching basic machine learning and programming and discussing a career in machine learning research with students from underrepresented minorities.
- **AI4ALL 2020:** Teaching basic machine learning and programming and discussing a career in machine learning research with students from underrepresented minorities.

Patents

- Trisha Mittal, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "System and Method for Detecting Fabricated Videos", US Patent App. 17/515,846.
- Trisha Mittal, Pooja Guhan, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "Human emotion recognition in images or video", US Patent App. 17/349,732.
- Trisha Mittal, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "System and method for multimodal emotion recognition", US Patent App. 17/173,018.