

Rohan Chandra

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I am a final year PhD candidate at University of Maryland, College Park advised by Prof. Dinesh Manocha. My research interests lie broadly in autonomous driving and multi-agent systems.

Education

Ph.D. in Computer Science
CGPA: 3.8/4.0

University of Maryland, College Park
August 2018 - Present

M.S. in Computer Science
CGPA: 3.8/4.0

University of Maryland, College Park
August 2016 - May 2018

B.Tech. in ECE

Delhi Technological University, New Delhi
August 2012 - July 2016

Internships

- **NVIDIA** **Santa Clara, CA**
Applied Research Intern, Autonomous Driving (Prediction) *Summer'21 (Remote)*
Improved ego-vehicle trajectory and behavior prediction via ego-goal conditioning by upto 50%. Improved navigation in particularly hard cases like U-turns and left turns—cases that the model struggled with.

Scholarships

- (2021) selected as part of the 2020-2021 cohort (22 selected out of approximately 5,000 doctoral students at UMD) of **Future Faculty Fellows**.
- (2020) Awarded the **Summer Research Fellowship** by The Graduate School, UMD.
- (2018) Recognized as a **top writer** on Quora with over 1 million views and 385 shares on my posts and answers.

Publications

Autonomous Driving and Multi-Agent Systems

1. (In **WACV 2022**) 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.
2. (In **RAL 2022**) Angelos Mavrogiannis, **Rohan Chandra**, Dinesh Manocha. B-GAP: Behavior-Guided Action Prediction for Autonomous Navigation.
3. (In **ICRA 2022**) **Rohan Chandra**, Mingyu Wang, Mac Schwager, Dinesh Manocha. Game-Theoretic Planning for Risk-Aware Human Drivers.
4. (**Under Review**) **Rohan Chandra**, Mridul Mahajan, Rahul Kala, Rishitha Palugulla, Chandrababu Naidu, Alok Jain, and Dinesh Manocha. METEOR: A Massive Dense & Heterogeneous Behavior Dataset for Autonomous Driving.
5. (In **ICRA/RAL 2022**) **Rohan Chandra**, Dinesh Manocha. GamePlan: Game-Theoretic Multi-Agent Planning with Human Drivers at Intersections, Roundabouts, and Merging.
6. (In **IEEE Transactions on ITS 2021**) **Rohan Chandra**, Aniket Bera, Dinesh Manocha. Using Graph-Theoretic Machine Learning to Predict Human Driver Behavior.
7. (In **ICCV 2021**) Divya Kothandaraman, **Rohan Chandra**, Dinesh Manocha. SS-SFDA: Self-Supervised Source-Free Domain Adaptation for Road Segmentation in Hazardous Environments.
8. (In **ICCV 2021**) Divya Kothandaraman, **Rohan Chandra**, Dinesh Manocha. BoMuDA: Boundless Multi-Source Domain Adaptive Segmentation in Unconstrained Environments.
9. (In **IROS 2020**) **Rohan Chandra**, Uttaran Bhattacharya, Trisha Mittal, Aniket Bera, Dinesh Manocha. CMetric: A Driving Behavior Measure Using Centrality Functions.
10. (In **ICRA 2020**) **Rohan Chandra**, Uttaran Bhattacharya, Trisha Mittal, Xiaoyu Li, Aniket Bera, Dinesh Manocha. GraphRQI: Classifying Driver Behaviors Using Graph Spectrums.
11. (In **IROS/RAL 2020**) **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.
12. (In **ICRA 2020**) **Rohan Chandra**, Uttaran Bhattacharya, Tanmay Randhavane, Aniket Bera, and Dinesh Manocha. RoadTrack: Tracking Road Agents in Dense and Heterogeneous Environments.
13. (In **RAL/ICRA 2020**) AJ Sathyamoorthy, Jing Liang, Utsav Patel, Tianrui Guan, **Rohan Chandra**, Dinesh Manocha. Densecavoid: Real-time navigation in dense crowds using anticipatory behaviors.
14. (In **CSCS 2019**) **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.

15. (In **IROS 2019**) **Rohan Chandra**, Uttaran Bhattacharya, Aniket Bera, and Dinesh Manocha. DensePeds: Pedestrian Tracking in Dense Crowds Using Front-RVO and Sparse Features.
16. (In **CVPR 2019**) **Rohan Chandra**, Uttaran Bhattacharya, Aniket Bera, and Dinesh Manocha. TraPHic: Predicting Trajectories of Road-Agents in Dense and Heterogeneous Traffic.
17. (**Under Review**) Tianrui Guan, Divya Kothandaraman, **Rohan Chandra**, Dinesh Manocha. GANav: Group-wise Attention Network for Classifying Navigable Regions in Unstructured Outdoor Environments.

Affective Computing

1. (In (**ACM'MM**), 2020) Trisha Mittal, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "Emotions Don't Lie: An Audio-Visual Deepfake Detection Method Using Affective Cues".
2. (In **ECCV 2020**) 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".
3. (In **AAAI 2020**(oral)) Trisha Mittal, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "M3ER: Multiplicative Multimodal Emotion Recognition Using Facial, Textual, and Speech Cues."
4. (In **AAAI 2020**) Uttaran Bhattacharya, Trisha Mittal, **Rohan Chandra**, Tanmay Randhavane, Aniket Bera, Dinesh Manocha. "STEP: Spatial Temporal Graph Convolutional Networks for Emotion Perception from Gaits."
5. (In **CVPR 2020**) Trisha Mittal, Pooja Guhan, Uttaran Bhattacharya, **Rohan Chandra**, Aniket Bera, Dinesh Manocha. "EmotiCon: Context-Aware Multimodal Emotion Recognition using Frege's Principle".

Teaching Experience

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

Professional Activities

- Invited Talks:
 - **Georgia Tech**
 - **UPenn**
 - **WACV'22**: Hazard Perception in Intelligent Vehicles (HPIV) Workshop.
 - **RSS'21**: Perception and Control for Autonomous Navigation in Crowded, Dynamic Environments Workshop.
 - **Maryland Robotics Center** Student Seminar.
- Invited to serve on the program committee of the **ICCV'21 Workshop on Multi-Agent Interaction and Relational Reasoning**.
- Served as a reviewer for the following conferences and journals: CVIU'18 -'20, IJCAI'19, CoRL'19, CVPR'20 -'21, AAAI'20 -'21, ICRA'20 -'21, IROS'19 -'20, RAL'20 -'21, NeurIPS'20, ICLR'21, ICML'21, ICCV'21, RSS'22.
- **2017-2018**: Served as a reviewer on the UMD CS graduate admissions committee.

Diversity and Inclusion

- **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.