

ABHIJAT BISWAS

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Education

Ph.D. Robotics 2019 onward	Carnegie Mellon University Area of study: Gaze based driver models for intelligent assistance Advisor: Henny Admoni
M.S. Robotics 2017	Carnegie Mellon University Thesis: <i>Human Torso Pose Forecasting for the Real World</i> Area of study: Social Navigation Advisors: Aaron Steinfeld & Henny Admoni
B.Tech. ECE 2016	Indian Institute of Technology Guwahati Thesis: <i>Visual Social Event Discovery</i> Advisor: Prithwjit Guha

Experience

Research intern Computer Vision May '23 - Aug '23	Toyota Research Institute Project: Modeling drivers' risk perception to improve driving assistance systems Advisors: John Gideon & Guy Rosman
Research intern Computer Vision Jun '22 - Aug '22	Bosch Autonomous Driving Development @ UT Austin Project: Mitigating causal confusion in IL driving agents via gaze supervision Advisors: Alessandro Allievi & Scott Niekum

Publications

An asterisk (*) indicates co-first authorship —these authors contributed equally to the work

Pre-prints

P1 Liu, S., **Biswas, A.**, Admoni, H., and Lindlbauer, D. (2024). Towards gaze-based memory modeling in 2d and 3d virtual scenes. *Under review @ ACM Transactions on Applied Perception (TAP)*

Journal Articles

J2 Gupta, P., **Biswas, A.**, Admoni, H., and Held, D. (2024). Object importance estimation using counterfactual reasoning for intelligent driving. *IEEE Robotics and Automation Letters*

J1 **Biswas, A.**, Wang, A., Silvera, G., Steinfeld, A., and Admoni, H. (2022). Socnavbench: A grounded simulation testing framework for evaluating social navigation. *ACM Transactions on Human-Robot Interaction (THRI)*, 11(3):1–24

Conference Papers

- C6** Wang, A., Sato, D., Corzo, Y., Simkin, S., **Biswas, A.**, and Steinfeld, A. (2024). Tbd pedestrian data collection: Towards rich, portable, and large-scale natural pedestrian data. *IEEE International Conference on Robotics and Automation (ICRA)*
- C5** **Biswas, A.** and Admoni, H. (2023). Characterizing drivers' peripheral vision via the functional field of view for intelligent driving assistance. In *IEEE Intelligent Vehicles Symposium (Oral)* (5% acceptance)
- C4** Silvera*, G., **Biswas***, **A.**, and Admoni, H. (2022). Dreyevr: Democratizing driving simulation in virtual reality for behavioural & interaction research. In *ACM/IEEE International Conference on Human-Robot Interaction (HRI)*
- C3** Newman*, B. A., **Biswas***, **A.**, Ahuja, S., Girdhar, S., Kitani, K. K., and Admoni, H. (2020). Examining the effects of anticipatory robot assistance on human decision making. In *International Conference on Social Robotics*
- C2** Sarvadevabhatla, R. K., Dwivedi, I., **Biswas, A.**, and Manocha, S. (2017). Sketchparse: Towards rich descriptions for poorly drawn sketches using multi-task hierarchical deep networks. In *Proceedings of the 25th ACM international conference on Multimedia*
- C1** Shankar, T., **Biswas, A.**, and Arun, V. (2015). Development of an assistive stereo vision system. In *Proceedings of the international Convention on Rehabilitation Engineering & Assistive Technology*

Workshop Papers and Extended Abstracts

- W4** **Biswas, A.**, Gupta, P., Held, D., and Admoni, H. (2024). An interactive protocol to measure a driver's situational awareness. In *7th International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions at HRI 2024*
- W3** **Biswas, A.** and Admoni, H. (2023). Characterizing drivers' peripheral vision via the functional field of view for intelligent driving assistance. In *45th Annual Meeting of the Cognitive Science Society (CogSci) (Oral)*
- W2** **Biswas, A.**, Pardhi, B. A., Chuck, C., Holtz, J., Niekum, S., Admoni, H., and Allievi, A. (2022). Gaze supervision for mitigating causal confusion in driving agents. In *CoRL Workshop: Aligning Robot Representations with Humans (Best Paper Award)* (also appeared as extended abstract at AAMAS 2024)
- W1** **Biswas, A.**, Admoni, H., and Steinfeld, A. (2018). Human torso pose forecasting in the real world. In *RSS Workshop: Multimodal Perception and Control*

Awards & Honors

Best Paper Award, CoRL 2022 Workshop on Aligning Robot Representations with Humans	2022
Link Foundation Fellowship in Modeling, Simulation, and Training (5 US PhDs annually)	2022

Professional Activities

Service Roles

Workshop Organizer, <i>1st Annual Social Robot Navigation: Advances and Evaluation</i> @ IEEE International Conference on Robotics and Automation (ICRA)	2022
Workshop Organizer, <i>All Things Attention: Bridging Different Perspectives on Attention</i> @ Conference on Neural Information Processing Systems (NeurIPS)	2022
Reviewer, IEEE Intelligent Vehicles Symposium (IV)	2024

Reviewer, ACM/IEEE International Conference on Human-Robot Interaction (HRI)	2021-24
Reviewer, HRI Pioneers workshop	2024
Reviewer, IEEE International Conference on Robotics and Automation (ICRA)	2023-24
Reviewer, IEEE Robotics and Automation Letters (RA-L)	2023
Reviewer, IEEE Conference on Virtual Reality and 3D User Interfaces (VR)	2023
Reviewer, International Journal of Social Robotics	2022
Reviewer, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)	2022
CMU SCS Dean's PhD Advisory Committee	2020-21

Invited Talks

Ethical perspectives of AI through contemporary gaming (panel), Ethics in AI Series, CMU	July 2021
Ethical and critical perspectives on Computer Vision in Graduate CV (16-720), CMU	2020, 2021
Visual social event discovery, Visual Computing Research Seminar, Cardiff University	June 2016

Mentorship

Pranay Gupta, CMU Masters (<i>Publications: J2, W4</i>)	2022 onward
Badal Arun Pardhi, CMU Masters (<i>Publications: W2, now @ Apple</i>)	2022-23
Gustavo Silvera, CMU undergrad (<i>Publications: J1, C4, now @ Tesla</i>)	2020-23
Anastasiia Runova, CMU undergrad	2022-23
Michael Huang, CMU undergrad, SRC-URO award	2018

Teaching

16-720: Computer Vision (graduate)	Fall 2020
TA for Prof. Srinivasa Narsimhan, Carnegie Mellon University	
I planned and taught a broader impacts module to supplement this advanced graduate-level course, placing CV research in the broader societal context.	
16-867: Human-Robot Interaction (graduate)	Spring 2019
TA for Prof. Henny Admoni, Carnegie Mellon University	