

Varun Kotian, Ph.D.

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in varunkotian

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About Me

Experienced researcher and engineer with expertise in vehicle dynamics, motion perception, and robotics. Specializing in large-scale human experimentation and modelling human responses. Excited about improving automated driving systems and enhancing user experiences. My passion for climbing mountains reflects my qualities as it demands — patience for the ascent, respect for nature, and integrity in overcoming challenges. Looking forward to collaborating with others to innovate and make a meaningful impact.

Experience

- 2024 – 2024 ■ **Visiting Researcher** Human Robotics Lab, Nara Institute of Science & Technology, Nara.
- 2022 – 2023 ■ **Visiting Researcher** Toyota Motor Europe, Zaventum.
- 2020 – 2021 ■ **Vehicle Dynamics Engineer** Nova Electric Racing, D:DREAM Team at TU Delft, Delft.
- 2019 – 2019 ■ **Trainee on CNC Machining** Industrial area Kandivili, Mumbai.
- 2017 – 2017 ■ **Trainee on Tool Management** Godrej & Boyce Mfg. Co. Ltd., Mumbai.
- 2016 – 2016 ■ **Intern on Planning and analysis of the Fire and Safety system in the College** under Dr. Andrew Hunter, K.J. Somaiya College of Engineering, Mumbai
- 2017 – 2018 ■ **Aerodynamics Head & Assistant Technical Coordinator** Orion Racing India, Formula Student Team (FSAE) of K. J. Somaiya College of Engineering.
- 2015 – 2016 ■ **Aerodynamics Engineer** Orion Racing India, Formula Student Team (FSAE) of K. J. Somaiya College of Engineering, Mumbai.

Education










- 2021 – 2025 ■ **Ph.D., TU Delft**, Cognitive Robotics, Intelligent Vehicles Group
Thesis title: *Motion perception and sickness modelling and prediction for automated driving and simulators.*
- 2019 – 2021 ■ **M.Sc. Vehicle Engineering, TU Delft**
Thesis title: *Amplitude dynamics of motion sickness.*
- 2014 – 2018 ■ **B.Tech. Mechanical Engineering, K. J. Somaiya College of Engineering**
Thesis title: *Design and development of carbon fiber aerodynamic package for a FSAE vehicle.*

Skills





- Languages ■ English, Hindi, Marathi, Tulu, German
- Coding ■ MATLAB, Python, C, C++, \LaTeX , Javascript, HTML, Docker, Git
- Simulation ■ Simulink, IPG Carmaker, Solidworks, ANSYS
- Embedded Systems ■ Control Design, PCB Design, ROS 2, Networking, CAN, Server Management
- Manufacturing ■ CAD, CAE, FMEA, CAM, CNC, Lathe, Carbon Fiber, Soldering, 3D Printing
- Misc. ■ Academic research, Publishing, Experimentation, Training, Project management

Miscellaneous









Equipments used

- 2021  **SIMONA Research Simulator.** Faculty of Aerospace Engineering, TU Delft.
- 2021-2023  **Mind Media Nexus.** Faculty of Mechanical Engineering, TU Delft.
- 2023  **Toyota Prius Instrumented Vehicle.** Faculty of Mechanical Engineering, TU Delft.
-  **OptiTrack Motion Capture System.** Faculty of Mechanical Engineering, TU Delft.
-  **XSens Motion Capture Suit.** Faculty of Mechanical Engineering, TU Delft.
- 2024  **6DOF Motion Platform.** Human Robotics Lab, Nara Institute of Science and Technology.
- 2025  **DAVSi Vehicle Simulator.** Faculty of Mechanical Engineering, TU Delft.
-  **Microsoft Kinect.** Faculty of Mechanical Engineering, TU Delft.
-  **XSens DOT.** Faculty of Mechanical Engineering, TU Delft.

Awards and Achievements

- 2018  **1st place,** Formula Bharat, Coimbatore, India.
-  **Participation,** Formula Student Hungary, Zalaegerszeg, Hungary.
- 2017  **2nd place,** Prakaalp (State Level Competition), Mumbai.
-  **Participation,** Formula Student Germany, Hockenheim, Germany.

Research Publications

- 1 **V. Kotian**, D. M. Pool, and R. Happee, "Personalising Motion Sickness Models: Estimation and Statistical Modeling of Individual-Specific Parameters," *Frontiers in Systems Neuroscience*, vol. 19, p. 1531795, ISSN: 1662-5137.  DOI: 10.3389/FNSYS.2025.1531795.
- 2 **V. Kotian**, T. Irmak, D. Pool, and R. Happee, "The role of vision in sensory integration models for predicting motion perception and sickness," *Experimental Brain Research*, vol. 242, no. 3, pp. 685–725, Jan. 2024, ISSN: 1432-1106.  DOI: 10.1007/s00221-023-06747-x.
- 3 E. Schippers, A. Schrank, **V. Kotian**, C. Messiou, M. Oehl, and G. Papaioannou, "A Motion for No Motion: The Redundancy of Motion Feedback in Low-Velocity Remote Driving of a Real Vehicle," 2024.  DOI: 10.2139/SSRN.5065264.
- 4 R. Happee, **V. Kotian**, and K. de Winkel, "Neck stabilization through sensory integration of vestibular and visual motion cues," *Frontiers in Neurology*, vol. 14, p. 1266345, 2023, ISSN: 1664-2295.  DOI: 10.3389/FNEUR.2023.1266345.
- 5 **V. Kotian**, D. M. Pool, and R. Happee, "Modelling individual motion sickness accumulation in vehicles and driving simulators," in *Proceedings of the Driving Simulation Conference*, Antibes, France, 2023.  DOI: 10.48550/arXiv.2309.07088.
- 6 G. Papaioannou, M. Cvetkovic, C. Messiou, **V. Kotian**, B. Shyrokau, and R. Happee, "A novel experiment to unravel fundamental questions about postural stability and motion comfort in automated vehicles," in *Proceedings of the 4th International Comfort Congress*, Amberg, 2023, pp. 123–126.  URL: https://pure.tudelft.nl/ws/portalfiles/portal/160233593/proceedings_4th_icc.pdf.
- 7 K. N. De Winkel, T. Irmak, **V. Kotian**, D. M. Pool, and R. Happee, "Relating individual motion sickness levels to subjective discomfort ratings," *Experimental Brain Research* 2022, vol. 1, pp. 1–10, Feb. 2022, ISSN: 1432-1106.  DOI: 10.1007/S00221-022-06334-6.
- 8 T. Irmak, **V. Kotian**, R. Happee, K. N. de Winkel, and D. M. Pool, "Amplitude and Temporal Dynamics of Motion Sickness," *Frontiers in systems neuroscience*, vol. 16, Apr. 2022, ISSN: 1662-5137.  DOI: 10.3389/FNSYS.2022.866503.