TransTech Talk Series # 28

KSCSTE-NATPAC

TRADE-OFFS IN AUTONOMOUS VEHICLES

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ABOUT THE TALK

Autonomous vehicle (AV) development and deployment are laden with complicated trade-offs that go beyond technical concerns. In this abstract, we will look at some of the important balancing acts that are necessary to make the AV vision a reality. These include things like the tension between data privacy and improved functionality, the importance of cost-effectiveness and robust sensing, the importance of performance and the explainability of AI decision-making, and the clash between individual convenience and collective benefits. There are major societal issues, such as the need to balance economic efficiency with the possibility of job loss and the ethical dilemmas that arise in situations where accidents are inevitable. In order to ensure the appropriate and beneficial integration of autonomous cars into our transportation systems, it is crucial to understand and navigate these complex trade-offs, as well as those pertaining to infrastructure, connectivity, and environmental effect.

ABOUT THE SPEAKER

Dr. Ankit R. Patel is currently affiliated with the University of Minho, Portugal, where he earned his Ph.D. in Electronics and Computer Engineering. His research interests include human factors and human–machine interaction, smart cities, policy and design, and sustainable, socially inclusive transportation. His scholarly contributions span intelligent transportation systems, human factors, and IoT-enabled robotics. He has participated in numerous prestigious international conferences, chairing technical sessions at major IEEE and ACM events. He has delivered keynote addresses and expert talks at more than a dozen major international conferences across Asia, Africa, and Europe, focusing on intelligent transportation, sustainable urbanism, AI-driven solutions, smart cities, and interdisciplinary advances in technology and education. Dr. Patel is an active member of professional bodies such as ACM, IEEE, and ASCE, and serves on five Transportation Research Board committees, reflecting his interdisciplinary commitment to human-centric innovation. He is lead editor for special issues in the Journal on Multimodal User Interfaces and the Journal of Social Economic Research, and serves on the editorial boards of leading Scopus-indexed journals including Future Transportation and Edelweiss Applied Science and Technology.