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Altri autori (Persone)	AlthoffMatthias BurgerChristoph DemlBarbara EcksteinLutz FlemischFrank
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Nota di contenuto	Part I. Perception and Prediction with Implicit Communication -- Chapter 1. How cyclists' body posture can support a cooperative interaction in automated driving (Daniel Trommler) -- Chapter 2. Prediction of cyclists' interaction-aware trajectory for cooperative automated vehicles (Dominik Raeck) -- Chapter 3. Detecting Intentions of Vulnerable Road Users Based on Collective Intelligence as a Basis for Automated Driving (DeCoInt2) (Stefan Zernetsch) -- Chapter 4. Analysis and simulation of driving behavior at inner city intersections (Hannes Weinreuter) -- Part II. Perception and Prediction with Explicit Communication -- Chapter 5. Robust Local and Cooperative Perception under Varying Weather Conditions (Jörg Gämmerdinger) -- Chapter 6.

Design and Evaluation of V2X Communication Protocols for Cooperatively Interacting Automobiles (Quentin Delooz) -- Part III. Motion Planning -- Chapter 7. Interaction-Aware Motion Planning as a Game (Christoph Burger) -- Chapter 8. Designing Maneuver Automata of Motion Primitives for Optimal Cooperative Trajectory Planning (Matheus V. A. Pedrosa) -- Chapter 9. Prioritized Trajectory Planning for Networked Vehicles Using Motion Primitives (Patrick Scheffe) -- Chapter 10. Maneuver-level cooperation of automated vehicles (Matthias Nichting) -- Chapter 11. Hierarchical Motion Planning for Consistent and Safe Decisions in Cooperative Autonomous Driving (Jan Eilbrecht) -- Chapter 12. Specification-Compliant Motion Planning of Cooperative Vehicles Using Reachable Set (Edmond Irani Liu) -- Chapter 13. AutoKnigge - Modeling, Evaluation and Verification of Cooperative Interacting Automobiles (Christian Kehl) -- Chapter 14. Implicit Cooperative Trajectory Planning under Uncertainty with Learned Rewards (Karl Kurzer) -- Chapter 15. Learning Cooperative Trajectories at Intersections in Mixed Traffic via Reinforcement Learning (S. Yan) -- Part IV. Human Factors -- Chapter 16. Cooperative Hub for Cooperative Research on Cooperatively Interacting Vehicles: Use-Cases, Design and Interaction Patterns (Frank Flemisch) -- Chapter 17. Cooperation between Vehicle and Driver: Predicting the Driver's Takeover Capability in Cooperative Automated Driving based on Orientation Patterns (Nicolas Herzberger) -- Chapter 18. Confidence Horizons: Dynamic Balance of Human and Automation Control Ability in Cooperative Automated Driving (Marcel Usai) -- Chapter 19. Cooperation Behavior of Drivers at Inner City Deadlock-Situations (Nadine-Rebecca Strelau) -- Chapter 20. Measuring and describing cooperation between road users - Results from CoMove (Laura Quante).

Sommario/riassunto

This open access book explores the recent developments automated driving and Car2x-communications are opening up attractive opportunities future mobility. The DFG priority program “Cooperatively Interacting Automobiles” has focused on the scientific foundations for communication-based automated cooperativity in traffic. Communication among traffic participants allows for safe and convenient traffic that will emerge in swarm like flow. This book investigates requirements for a cooperative transport system, motion generation that is safe and effective and yields social acceptance by all road users, as well as appropriate system architectures and robust cooperative cognition. For many years, traffic will not be fully automated, but automated vehicles share their space with manually driven vehicles, two-wheelers, pedestrians, and others. Such a mixed traffic scenario exhibits numerous facets of potential cooperation. Automated vehicles must understand basic principles of human interaction in traffic situations. Methods for the anticipation of human movement as well as methods for generating behavior that can be anticipated by others are required. Explicit maneuver coordination among automated vehicles using Car2X-communications allows generation of safe trajectories within milliseconds, even in safety-critical situations, in which drivers are unable to communicate and react, whereas today's vehicles delete their information after passing through a situation, cooperatively interacting automobiles should aggregate their knowledge in a collective data and information base and make it available to subsequent traffic.
