This book provides an invaluable introduction to inter-vehicular communications, demonstrating the networking and communication technologies for reducing fatalities, improving transportation efficiency, and minimising environmental impact.

This book addresses the applications and technical aspects of radio-based vehicle-to-vehicle and vehicle-to-infrastructure communication that can be established by short- and medium range communication based on wireless local area network technology (primarily IEEE 802.11). It contains a coherent treatment of the important topics and technologies contributed by leading experts in the field, covering the potential applications for and their requirements on the communications system. The authors cover physical and medium access control layer issues with focus on IEEE 802.11-based systems, and show how many of the applications benefit when information is efficiently disseminated, and the techniques that provide attractive data aggregation (also includes design of the corresponding middleware). The book also considers issues such as IT-security (means and fundamental trade-off between security and privacy), current standardization activities such as IEEE 802.11p, and the IEEE 1609 standard series.

Key Features:

• Covers the state-of-the-art in the field of vehicular inter-networks such as safety and efficiency applications, physical and medium access control layer issues, middleware, and security

• Shows how vehicular networks differ from other mobile networks and illustrates the idea of vehicle-to-vehicle communications with application scenarios and with current proofs of concept worldwide
• Addresses current standardization activities such as IEEE 802.11p and the IEEE 1609 standard series

• Offers a chapter on mobility models and their use for simulation of vehicular inter-networks

• Provides a coherent treatment of the important topics and technologies contributed by leading academic and industry experts in the field

This book provides a reference for professional automotive technologists (OEMS and suppliers), professionals in the area of Intelligent Transportation Systems, and researchers attracted to the field of wireless vehicular communications. Third and fourth year undergraduate and graduate students will also find this book of interest.

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