

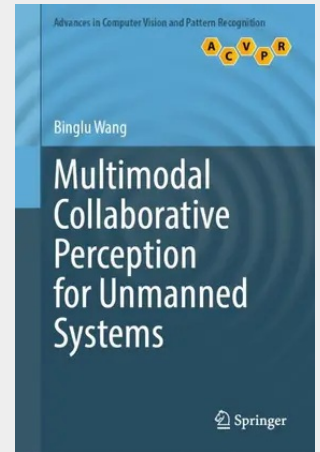
Multimodal Collaborative Perception for Unmanned Systems

This book focuses on multimodal collaborative perception—a cornerstone for unmanned systems. As connected vehicles, autonomous driving, and UAV-based monitoring continue to evolve, the ability to integrate diverse sensor data into reliable, real-time situational awareness becomes crucial. This book speaks directly to researchers, graduate students, and professionals who want to understand both the technical foundations and practical applications of collaborative perception.

Structured to bridge theory and practice, the book offers a comprehensive exploration that begins with sensor principles and preprocessing, advances through state estimation, collaborative object detection, tracking, and localization, and culminates in real-world applications in autonomous driving and UAV monitoring. Readers will discover how classical models such as Kalman filtering merge with cutting-edge deep learning techniques, how multimodal data fusion enhances perception under complex conditions, and how digital twin integration, edge computing, and privacy-preserving learning shape the future of the field.

By reading this book, audiences will gain not only a thorough understanding of multimodal sensor technologies but also insights into system-level design and deployment challenges. The book's unique blend of systematic engineering perspective, algorithmic rigor, and forward-looking research directions makes it stand out as both a textbook and a reference. A background in computer science, electrical engineering, or related fields will help readers maximize its value, but the clear structure also supports learners entering the domain.

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