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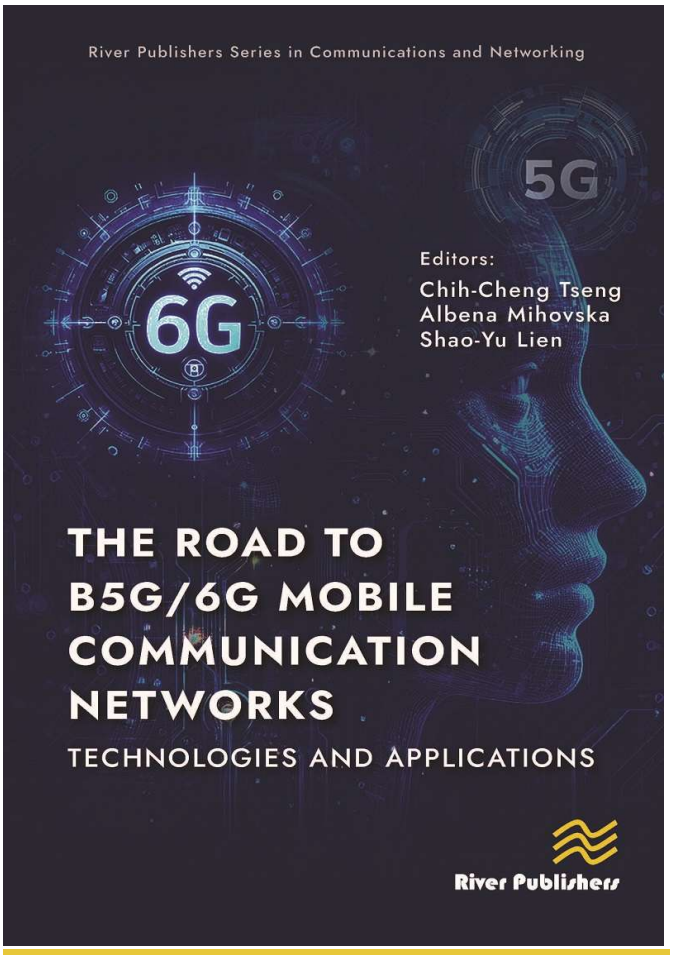
The Road to B5G/6G Mobile Communication Networks: Technologies and Applications

Editors:

Chih-Cheng Tseng, National Taiwan Ocean University, Taiwan (ROC)

Albena Mihovska, SmartAvatar, Denmark

Shao-Yu Lien, National Yang Ming Chiao Tung University, Taiwan (ROC)



This book provides essential resources for industry, academia, and research professionals for understanding the potential evolving roadmap of Beyond 5G (B5G) and 6G technologies and their diverse applications.

In the critical era of the evolution of the 5G mobile communication networks, wireless mobile communication technologies have already pivoted toward the next stages: Beyond 5G (B5G) and the upcoming Sixth Generation (6G). This book is an insightful collection that explores cutting-edge technologies and applications guiding the paths toward B5G and 6G mobile communication networks. Divided into two parts, Technologies and Applications, the book covers a broad spectrum of advancements for the future of mobile systems.

The focus of Part I: Technologies and advanced techniques to B5G/6G is AI-enhanced language learning applications and the use of graph convolutional networks for channel and power allocation in device-to-device communication. It also explores machine learning methods for beam selection and unsupervised learning approaches in mobile network management. Topics such as frequency resource allocation in satellite communication, high-frequency mmWave analysis using clustering methods, and deep learning for network traffic prediction are highlighted. Furthermore, innovative concepts like area sweep coverage, hardware implementations for signal processing, and centralized radio access networks (C-RAN) are discussed, providing a glimpse into future dynamic radio resource allocation schemes.

Part II: Applications addresses emerging trends such as quantum machine learning and the transformative potential of the Tactile Internet in enhancing healing and self-actualization. It also explores real-time system communication efficiencies, showcasing the practical impacts of these advancements.

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marketing@riverpublishers.com