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Ensuring reliable communication is an important concern in short-range wireless communication systems with stringent quality of service requirements. Key characteristics of these systems, including data rate, communication range, channel profiles, network topologies, and power efficiency, are different from those in long-range systems. This comprehensive book classifies short-range wireless technologies as high and low data rate systems. It addresses major factors affecting reliability at different layers of the protocol stack, detailing the best ways to enhance the capacity and performance of short-range wireless systems. Particular emphasis is placed on reliable channel estimation, state-of-the-art interference mitigation techniques, and cooperative communications for improved reliability. The book also provides coverage of related international standards including UWB, ZigBee, and 60 GHz communications. With a balanced treatment of theoretical and practical aspects of short-range wireless communications, and with a focus on reliability, this is an ideal resource for practitioners and researchers in wireless communications.

Ismail Guvenc is a Research Engineer with DOCOMO USA Laboratories, where his research interests include UWB communications and position estimation, femtocell networks, relay networks, LTE systems, and cognitive radio. He has published several standardization contributions for IEEE 802.15 and IEEE 802.16 standards, and hold four US patents, with another 15 US patent applications pending.

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Ulas C. Kozat is the Project Manager for the Network Architecture team at DOCOMO USA Laboratories. He has conducted research in the broad areas of wireless communications and communications networks, and has published mainly in cross-layer optimization, network modeling and performance analysis, and algorithm/protocol design.