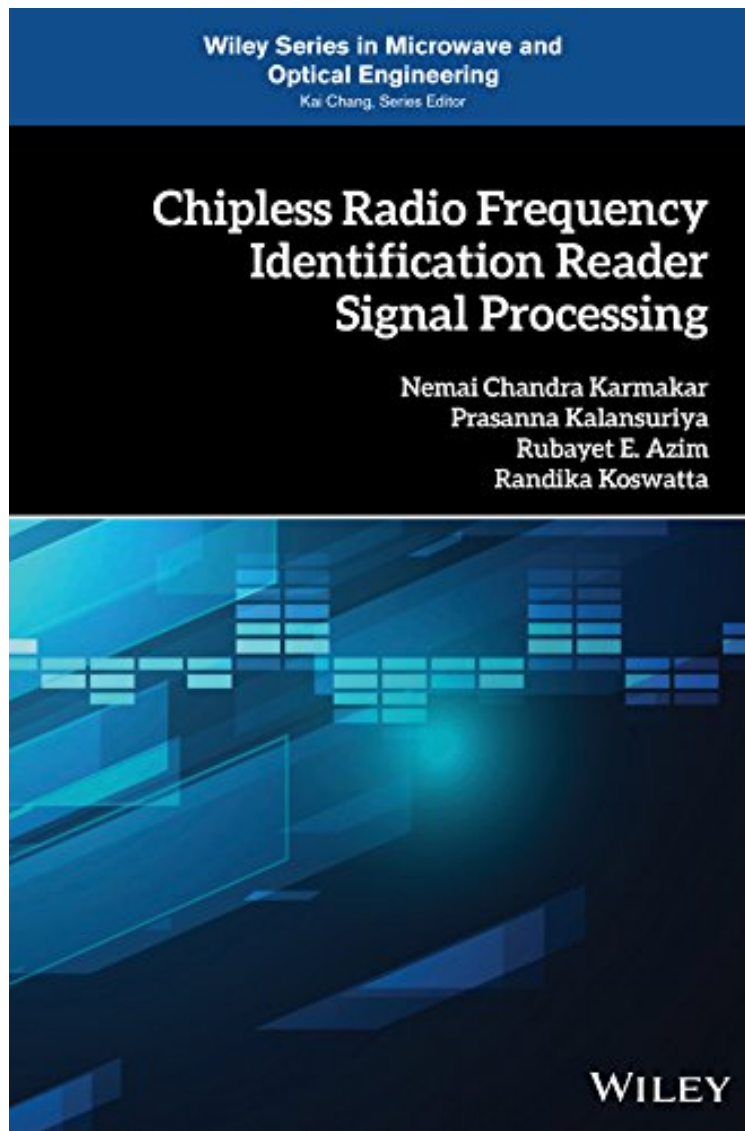


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Nemai Chandra Karmakar, Prasanna Kalansuriya, Rubayet E. Azim, Randka Koswatta
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From the Back CoverPresents a comprehensive overview and analysis of the recent developments in signal processing for Chipless Radio Frequency Identification Systems This book presents the recent research results on Radio Frequency Identification (RFID) and provides smart signal processing methods for detection, signal integrity, multiple-access and localization, tracking, and collision avoidance in Chipless RFID systems. The book is divided into two sections: The first section discusses techniques for detection and denoising in Chipless RFID systems. These techniques include signal space representation, detection of frequency signatures using UWB impulse radio interrogation, time domain analysis, singularity expansion method for data extraction, and noise reduction and filtering techniques. The second section covers collision and error correction protocols, multi-tag identification through time-frequency analysis, FMCW radar based collision detection and multi-access for Chipless RFID tags as well as localization and tag tracking. Describes the use of UWB impulse radio interrogation to remotely estimate the frequency signature of Chipless RFID tags using the backscatter principle s the collision problem in both chipped and Chipless RFID systems and summarizes the prevailing anti-collision algorithms to address the problem Proposes state-of-the-art multi-access and signal integrity protocols to improve the efficacy of the system in multiple tag reading scenarios Features an industry approach to the integration of various systems of the Chipless RFID reader-integration of physical layers, middleware, and enterprise software Chipless Radio Frequency Identification Reader Signal Processing is primarily written for researchers in the field of RF sensors but can serve as supplementary reading for graduate students and professors in electrical engineering and wireless communications.About the AuthorNemai Karmakar, PhD, is the lead researcher at the RFID and Antenna Research Group at Monash University, Australia. He received his PhD in ITEE from the University of Queensland, Australia, in February 1999. Dr. Karmakar is a pioneer in fully printable Chipless RFID tags, readers, signal processing, and smart antennas. He has published more than 350 scientific journal and conference articles, 9 books, 35 book chapters, and 9 patent applications. Prasanna Kalansuriya, PhD, is an electrical engineer at Clarinox Technologies, Australia. He obtained a PhD in electrical and computer systems engineering at Monash University, Australia in 2014. In 2012, he was a visiting researcher with the Auto-ID Laboratory, Massachusetts Institute of Technology, Cambridge, MA. Rubayet E Azim is working toward her PhD on Chipless RFID signal processing in electrical and computer systems engineering at Monash University, Australia. Randika Koswatta, PhD, is a RF design engineer with Hawk Measurement Systems in Melbourne, Australia. He obtained his PhD from the Electrical and Computer Systems Engineering Department of Monash University, Australia in 2013 and completed a bachelors degree in electrical and electronics engineering with first class honors from the University of Peradeniya, Sri Lanka in 2007.