

Self-Evolving Digital Twin Over Wireless Networks

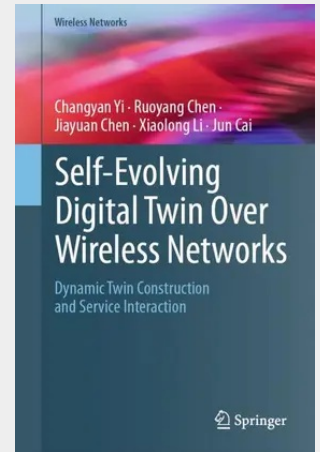
Dynamic Twin Construction and Service Interaction

This book focuses on the integration of self-evolving Digital Twins (DTs) with wireless networks, exploring critical methodologies for dynamic twin construction and real-time service interaction. It addresses challenges posed by wireless environments, which are paramount for maintaining high-fidelity virtual replicas of physical systems. The content provides a comprehensive outline for building and managing DTs that can continuously adapt over wireless networks.

The authors dedicated this book to innovative solutions for optimizing resource allocation and intelligent decision-making. It includes game-theoretic online optimization for federated DT construction and generative artificial intelligence-aided framework for quality-of-experience driven DT service interaction. Furthermore, it shows the practical implementation of these technologies through detailed applications in intelligent vehicular networks.

This book is appropriate for advanced-level students in computer science and electrical engineering, who are studying wireless communications, distributed systems, Internet of Things, and cyber-physical systems. Researchers and industry practitioners seeking to leverage DTs for innovation in smart manufacturing, intelligent transportation, and smart cities will find this book invaluable as well.

This book focuses on the integration of self-evolving Digital Twins (DTs) with wireless networks, exploring critical methodologies for dynamic twin construction and real-time service interaction. It addresses challenges posed by wireless environments, which are paramount for maintaining high-fidelity virtual replicas of physical systems. The content provides a comprehensive outline for building and managing DTs that can continuously adapt over wireless networks. The authors dedicated this book to innovative solutions for optimizing resource allocation and intelligent decision-making. It includes game-theoretic online optimization for federated DT construction and generative artificial intelligence-aided framework for quality-of-experience driven DT service interaction. Furthermore, it shows the practical implementation of these technologies through detailed applications in intelligent vehicular networks. This book is appropriate for advanced-level students in computer science and electrical engineering, who are studying wireless communications, distributed systems, Internet of Things, and cyber-physical systems. Researchers and industry practitioners seeking to leverage DTs for innovation in smart manufacturing, intelligent transportation, and smart cities will find this book invaluable as well.



192,59 €

179,99 € (zzgl. MwSt.)

vorbestellbar, Erscheinungstermin ca. Januar 2026

Artikelnummer: 9783032081193

Medium: Buch

ISBN: 978-3-032-08119-3

Verlag: Springer-Verlag GmbH

Erscheinungstermin: 28.01.2026

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2026

Serie: Wireless Networks

Produktform: Gebunden

Seiten: 195

Format (B x H): 155 x 235 mm

