

Electronic Communication and Artificial Intelligence

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Electronic communication and artificial intelligence are rapidly transforming the way modern telecommunications systems, devices, and intelligent infrastructures are designed and operated. This book introduces readers to the expanding intersection of electrical engineering, computer engineering, and artificial intelligence, highlighting the foundational concepts, practical applications, and multidisciplinary career opportunities emerging from these converging fields. Covering topics such as AI-driven smart buildings, the Internet of Things, intelligent networking systems, adaptive beamforming, smart power grids, data analysis and visualization, advanced wireless communications, and intelligent antenna systems, the book demonstrates how modern engineering is increasingly defined by intelligent, connected technologies. A strong emphasis is placed on real-world applications that address some of today's most pressing engineering challenges—from autonomous structural control in high-rise buildings exposed to extreme weather and seismic activity, to AI-enabled smart homes that monitor safety, energy efficiency, and human well-being through integrated sensor networks and intelligent decision-making systems. Through practical examples spanning home automation, infrastructure resilience, wireless communications, and even aerospace applications, the authors reveal the breadth, impact, and future potential of electronic communication and AI engineering. Designed for students, researchers, and practicing engineers, this book provides both a solid foundation and a forward-looking exploration of one of the most dynamic and influential areas of modern technology.

TABLE OF CONTENTS

- Time Changing Electromagnetics: Fields and Waves
- A Brief Analysis on 6G, 5G, 4G, and 3G in the V Mesh Milieu
- Communication Networks Backbone of Resilient, Secure Microgrids
- MATLAB Applications
- Communications and Computing for Smart, Healthy, and Sustainable Buildings
- Internet of Things
- Enhancing Urban Traffic Safety: A Metaheuristic Approach to Collision Avoidance in Smart Cities
- An Innovative Kalman Predictor-based Beam-steering Antenna Configuration for Maximum Power Transfer
- Smart, Fast and Low Memory Geometrical Beamforming MIMO Antenna.
- Data Analysis and Visualization with Python: A Case Study on Smart Buildings



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River Publishers Series in Computing and Information Science and Technology

ISBN: 9788743814788

e-ISBN: 9788743814795

Available From: August 2026

Price: € 127.15

KEYWORDS:

Electronic communication, artificial intelligence, smart antennas, climate change, 5G, 6 G, 4G, 5G, communication networks, software coding, smart building, IoT, Kalman predictive code, beamforming, traffic safety, antenna signal processing, wireless communication

