

# Intelligent Networks

## Techniques and Applications

EDITED BY

Vivek Kumar Singh, Anil Kumar Sagar,  
Parma Nand, Rani Astya and  
Omprakash Kaiwartya



# Intelligent Networks

The book presents the latest developments in intelligent communication networks based on applicability from various domains of artificial intelligence and machine learning, including channel modeling, model-based structure, channel prediction, and signal detection. It further explains important topics such as vehicular mobility modeling, human-centric network applications, security and privacy in social networks, and trust-based intelligent transportation systems.

This book:

- Presents a model-based approach to constructing an effective network by using state-of-the-art artificial intelligence techniques.
- Discusses the theoretical and practical applications of channel prediction and signal detection.
- Introduces the fundamental concepts and application of vehicular networks in conjunction with artificial intelligence.
- Explores wireless communication network techniques enabled by human-centric applications, and designed and developed with artificial intelligence characteristics.
- Highlights the challenges in designing and developing an effective and intelligent communication network that can be applied in different domains of human activities to find sustainable solutions.

This book is primarily written for senior undergraduate and graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, computer engineering, and information technology.

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# Contents

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<i>Preface</i>	viii
<i>Editors</i>	x
<i>Contributors</i>	xiii
<b>1 Fundamentals of AI and communication networks: Applications in human social activities</b>	<b>1</b>
MANOJ KUMAR MAHTO AND G. RAJAVIKRAM	
<b>2 AI-based intelligent mobility in vehicular ad hoc networks</b>	<b>18</b>
BHAGWATI SHARAN, MEGHA CHHABRA, ANIL KUMAR SAGAR, PARMA NAND, RANI ASTYA, VIVEK KUMAR SINGH, AND SUBRATA SAHANA	
<b>3 Intelligent human-centric network (IHCN) applications</b>	<b>42</b>
K. DEEPA AND D. DEVASENA	
<b>4 Mathematical modeling for vehicle density and traffic flow with intelligent vehicular communication</b>	<b>57</b>
RAJU SINGH GAUR	
<b>5 The impact of Artificial Intelligence on energy optimization for cellular network base stations</b>	<b>67</b>
MAMTA PUNJABI AND RATNALATA GUPTA	
<b>6 Semantic scrutiny of wireless sensors, Internet of Medical Things, and blockchain in mobile healthcare applications: Unveiling intelligent networks for patient privacy, security, and resilience</b>	<b>85</b>
BHUPINDER SINGH AND CHRISTIAN KAUNERT	

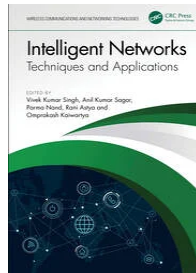
<b>7 Energy-efficient data collection scheme for mobile sink-based wireless sensor networks</b>	<b>97</b>
VAIBHAV AGARWAL AND SHASHIKALA TAPASWI	
<b>8 IoT-enabled smart green cities using blockchain technology: Sustainable Applications</b>	<b>113</b>
AMRIT SUMAN, PREETAM SUMAN, SANA ZEBA, SASMITA PADHY, AND VISHAL JAIN	
<b>9 Leveraging wireless technology and IoT in developing a smart judiciary system with smart dust sensors</b>	<b>129</b>
KANISHKA VAISH, MOUSAM SHARMA, SAMTA KATHURIA, SHWETA PANDEY, RAJESH SINGH, ANITA GEHLOT, SHAIK VASEEM AKRAM, AND PRAVEEN KUMAR MALIK	
<b>10 Energy optimization using Artificial Intelligence</b>	<b>152</b>
PRIYANKA TYAGI, SAKSHI, TUSHAR MEHROTRA, AND VISHAL JAIN	
<b>11 Wireless networking solutions for climate control and comfort in modern air conditioning systems</b>	<b>165</b>
SHALOM AKHAI, AMANDEEP SINGH WADHWA	
<b>12 Malicious node detection in IoT networks using artificial neural networks: A machine learning approach</b>	<b>182</b>
KAZI KUTUBUDDIN SAYYAD LIYAKAT	
<b>13 Blockchain technology-based framework to build cyber-secured smart cities</b>	<b>198</b>
NASHRA JAVED, HALIMA SADIA, TASNEEM AHMED, AND MOHAMMAD FAISAL	
<b>14 Greening the wireless world: Energy-efficient and sustainable communication</b>	<b>216</b>
M. ANANDARAJ, P. GANESHKUMAR, S. NAGANANDHINI, AND K. SELVARAJ	
<b>15 Communication networks and media convergence in the age of intelligent systems</b>	<b>235</b>
ARCHAN MITRA AND SAYANI DAS	
<b>16 Recent advancements in the security of conventional networks with software-defined network</b>	<b>249</b>
VINAY GAUTAM AND JYOTI RANI	

<b>17 Analyzing security and privacy in social communication networks</b>	<b>263</b>
MEET KAPOOR, RISHABH AGGARWAL, SHIVANI G SABHARWAL, AND SUMAN MADAN	
<b>18 Performance analysis of PEGASIS in 3D WSNs using variants of genetic algorithm applying energy-competent variants of genetic algorithm</b>	<b>281</b>
RAMKRISHNA GHOSH, SUNEETA MOHANTY, AND PRASANT KUMAR PATNAIK	
<b>19 Sustainable communication network architecture in agriculture</b>	<b>303</b>
PAWAN WHIG, JHANSI BHARATHI MADAVARAPU, RATTAN SHARMA, AND VENUGOPAL REDDY MODHUGU	
<b>20 Modernizing healthcare through IoT-based e-health systems</b>	<b>318</b>
NAFEES AKHTER FAROOQUI, IQRA ASHRAF, AND RUPAM JAISWAL	
<i>Index</i>	<b>331</b>

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Chapter

## Blockchain technology-based framework to build cyber-secured smart cities

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## ABSTRACT

The recent surge in population growth is driving an escalating demand for resources, propelling the imperative for Internet of Things (IoT)-enabled devices in the evolution of smart cities. "Smart city" is an umbrella term that spans smart homes, smart waste management, smart drainage management, smart transport, and smart traffic management systems with accessible Wi-Fi and surveillance. There is a revolution in IoT-based urban services, and along with the burgeoning data volumes stored in the cloud for smart city operations, considerable challenges have been identified, primarily concerning privacy breaches and information leaks. The future of urbanization is critically dependent on cloud security for storing billions of data points. The transformative potential of smart cities presents unprecedented cyber threats that can compromise crucial services and infrastructure. Mitigating these cyber risks necessitates a hybrid persuasive intelligent security system with blockchain technology. Blockchain technology delivers secure, traceable, and decentralized techniques for storing and transmitting data. Nevertheless, successful utilization of blockchain demands careful contemplation of scalability, energy efficiency, and interoperability. Striking a balance between innovation and security, along with collaborative efforts between stakeholders, is pivotal for harnessing the transformative power of smart cities while ensuring robust data protection and urban resilience.

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