Preface

In the era of digital transformation, the integration of Artificial Intelligence (AI) and advanced communication protocols has revolutionized the healthcare landscape, particularly in the context of smart cities. The increasing demand for real-time health monitoring, predictive analytics, and personalized medical interventions necessitates the development of robust, secure, and efficient communication frameworks. This book chapter, titled "Communication Protocols and AI Integration for Real-Time Monitoring and Predictive Healthcare Systems in Smart Cities," into the intersection of AI-driven technologies and standardized communication protocols, shaping the future of intelligent healthcare infrastructures. This chapter presents a comprehensive overview of the multi-layered communication architectures essential for real-time healthcare applications, exploring their role in facilitating seamless data exchange, interoperability, and system security. It also highlights the transformative potential of AI in predictive analytics, enabling healthcare providers to make data-driven decisions with unprecedented accuracy and efficiency. By integrating Internet of Things (IoT)-enabled devices, edge computing, and cloud frameworks, modern healthcare ecosystems are evolving to deliver timely and reliable medical solutions while ensuring regulatory compliance and patient data privacy.