Chapter 15
Ethical Challenges and Innovations in AI-Driven Healthcare and Engineering:
A Review of Blockchain, Cybersecurity, Data Privacy, and Knowledge Management

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ABSTRACT

This paper provides a comprehensive review of the ethical considerations and technological advancements associated with artificial intelligence (AI) in both healthcare and engineering domains. It examines the role of blockchain technology in enhancing data privacy and cybersecurity, and explores the impact of AI on knowledge management and innovation processes in engineering. In the healthcare sector, the integration of AI raises critical ethical questions regarding data privacy and security, necessitating robust solutions to safeguard sensitive information. Blockchain technology offers a promising framework for secure data sharing and management, addressing concerns related to cybersecurity and compliance with legal standards such as ISO 27001 and general data protection regulations. In parallel, AI's influence on knowledge management and innovation in engineering is significant, transforming how information is managed and utilized to drive technological progress.

INTRODUCTION

Artificial Intelligence (AI) is increasingly becoming a cornerstone of modern technological advancements, with profound impacts on various fields, including healthcare and engineering. The integration of AI into these domains offers numerous benefits, such as enhanced diagnostic capabilities in healthcare and innovative solutions in engineering. However, it also raises significant ethical concerns, particularly regarding data privacy, cybersecurity, and the effective management of knowledge. In the realm of healthcare, AI-driven solutions promise to revolutionize patient care, streamline administrative processes, and improve clinical outcomes. Despite these advantages, the ethical implications of AI, such as maintaining patient privacy and ensuring data security, present substantial challenges. Blockchain technology has emerged as a potential solution to these challenges, providing a decentralized and secure framework for managing sensitive healthcare data. It addresses issues related