Chapter 17
AI-Enabled Data Processing for Real-World Applications of IoT: A Review-Based Approach

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ABSTRACT

This is a digitally inclined era. The government support across all the countries in the globe and its associated initiatives on this IoT are commendable. In this chapter, the authors studied the research papers related to big data, IoT, and AI. The research papers were fetched from the Scopus database using Boolean operators (AND, OR) with the keywords, "IoT", "Big Data", "H IoT", and "AI". The chapter is presented in two parts. The first part is about the synthesis of the major papers related to this study. The second part is about the leverage of AI in various sectors like healthcare, education, finance, smart cities, energy, telecommunication, and agriculture. After studying from the vast literature, it shows that that IoT, big data, and ML are indispensable in the years to come. In this chapter, the authors call for government, industries, and academicians to collaborate together for conferences, seminars, and joint projects to digitalize all the premises and bring a data driven decisions.

INTRODUCTION

The (IoT) stands as the most difficult platform poised to connect physical objects in the upcoming future. Numerous review studies have been undertaken to assess and consolidate the utilization of IoT across

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diverse domains. However, there is a notable gap in research, as there has been a lack of comprehensive review studies exploring the application of IoT in the field of education. (Ahaidous et al., 2023) The retail sector leads the way in adopting IoT, anticipating a transformation in the customer shopping experience. Rooted in the service-dominant logic, it is suggested that engaging with IoT retail technology enhances the co-creation of value by customers. (Balaji & Roy, 2017). The circular economy stands to benefit from the integration of advancing digital technologies like big data, artificial intelligence (AI), blockchain, and the Internet of Things (IoT).The integration of digital technologies along with innovative business models is expected to offer solutions to various global challenges, including those associated with the transformation to a circular economy(Chauhan et al., 2022). In the dynamic era, organizations leverage advanced technologies like Artificial Intelligence (AI), Internet of Things (IoT), and Big Data to enhance customer loyalty. By synergistically integrating these technologies, businesses aim to elevate customer satisfaction, engagement, relationships, and overall experiences, fostering stronger customer allegiance and maintaining a competitor (Rane, 2023a). The integration of Artificial Intelligence (AI) with the Internet of Things (IoT) revolutionizes technology, imbuing machines with emotions and enabling remote operations, reflecting the ongoing evolution in our lives and surroundings (Sharma et al., 2021).

APPLICATIONS OF H-IOT

Healthcare Internet of Things (H-IoT) advancements offer opportunities for remote patient treatment and monitoring, emphasizing the critical need for securing personal health data during transmission.

Figure 1. Conceptual framework based on the scholarly articles synthesized