



Chapter 11


UAV Communication for Various Learning Approaches in Metaverse Healthcare Analysis Using Cloud Computing

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ABSTRACT

The revolutionary integration of unmanned aerial vehicle (UAV) communication, metaverse technology, learning techniques, and cloud computing in the healthcare industry is investigated in this chapter. Unmanned aerial vehicles (UAVs) are capable

DOI: 10.4018/979-8-3693-2268-0.ch011

of collecting a wide variety of data, which can then be viewed in the metaverse. In order to detect illnesses at an earlier stage, machine learning is powered by cloud computing. At the same time that ethical concerns and regulatory problems are being highlighted, the necessity of international collaboration is being emphasized. Applications in the real world illustrate a future in which medical care is not limited by geographic boundaries; it will be possible to receive treatment remotely and receive medical education on a global scale. The chapter is a representation of a collective aspiration to make healthcare a fundamental human right, so rewriting the history of human compassion and the advancement of medical technology.

INTRODUCTION

Unmanned Aerial Vehicles (UAVs) that are fitted with sophisticated sensors have emerged as an essential component in the process of data collection within the healthcare industry (A Román et al.,2024). Unmanned Aerial Vehicles (UAVs) are able to circumvent geographical limitations and collect important life signs and environmental data in real time, which is essential for medical study. These vehicles take on the role of data couriers by utilizing unmanned aerial vehicle (UAV) connectivity, thereby bridging the gap between remote places and medical professionals (Saunders ., et al.,2024). The technological complexities of unmanned aerial vehicle (UAV) communication and the revolutionary influence it has on the accessibility of healthcare data are discussed in this chapter. Concurrently, the manifestation of the metaverse as a revolutionary space for the depiction of healthcare is taking place. Through the use of the metaverse, which functions as a dynamic canvas, raw data may be transformed into interactive simulations, which in turn makes intensive medical study possible. In order to fully realize the promise of the metaverse for use in healthcare applications, it is essential to address technical factors such as data rendering, user interaction, and integration with data obtained by unmanned aerial vehicles (UAVs). Within the scope of this chapter, the technological complexities of utilizing the metaverse for the purpose of healthcare visualization and analysis are investigated. The central focus of this investigation is on the interactions between unmanned aerial vehicle (UAV) communication, metaverse technology, a variety of learning approaches, and cloud computing. In this context, the focus shifts to technical elements, such as the incorporation of cloud platforms and machine learning techniques. The purpose of this chapter is to analyze the technical aspects of unmanned aerial vehicle (UAV) communication (Al-Iqubaydhi, N ., et al.,2024) in conjunction with learning strategies within the metaverse (Zhang, X., et al.,2024), and to investigate how cloud computing enhances the synergy between these two aspects. Using a technical perspective, this chapter envisions a future in which

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