Chapter 8
Integration of Computer Vision Techniques, UAV, and Metaverse Analysis to Uplift Healthcare Services

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ABSTRACT

Unmanned aerial vehicles (UAVs) play a vital role in healthcare applications, specifically in rural and isolated regions. The metaverse, a collective virtual shared place, offers a one-of-a-kind platform for immersive and collaborative healthcare

data analysis. Improved patient outcomes and healthcare efficiency can be achieved by the widespread adoption of computer vision (CV) tools and techniques in clinical settings. The synergy between CV, metaverse analysis, and UAV communication offers a transformative approach to healthcare delivery. This study investigates the incorporation of computer vision methodologies and strategies into the metaverse framework to augment healthcare services provided by UAV communication. UAVs with extensive communication capabilities act as a link between the physical and metaverse, allowing for seamless data flow and analysis. This multidisciplinary approach offers real-time, immersive insights that improve diagnosis, decision-making, and overall patient care, and it has the potential to completely transform the way healthcare is delivered.

INTRODUCTION

Personal health is indispensable for fulfilment, productivity, and pleasure. Physical health, mental well-being, longevity, academic and professional achievement, and interpersonal connections are all significantly influenced. It promotes community well-being, contributes to economic expansion, and decreases healthcare expenditures. India has made significant advancements in the health sector during the past few decades. The life expectancy at birth has been increased from 62.1 years in 2000 to 70.8 years in 2019. The average lifespan has surpassed 67 years, while the mortality rates of infants are decreasing. Several diseases, including polio, guinea worm disease, yaws, and tetanus, have been eliminated (WHO, 2019). Despite these advancements, it is anticipated that communicable illnesses will remain a significant public health issue in the ensuing decades, endangering both national and global health security. India is currently facing a severe lack of healthcare workforce.

In 2016, Low-Income and Middle-Income Countries (LMICs) reported an excess of 15.6 million fatalities due to 61 ailments. After removing deaths that may be averted through public health interventions, 8.6 million additional deaths were amenable to health care, with 5.0 million estimated to be related to poor-quality care and 3.6 million due to non-use of health care. Poor health care quality was a substantial cause of excess mortality across a wide range of ailments, including cardiovascular disease and accidents, as well as neonatal and communicable diseases. A lack of healthcare professionals, transportation obstacles, socioeconomic inequality, and restricted access to facilities are just a few of the particular difficulties faced by rural communities. Based on the study, the annual mortality rate attributable to substandard care in India is approximately 122 per 100,000 individuals. This figure places India behind South Africa (93) and Brazil (74), Russia (91), China (46) and Nepal (93), as well as its neighbouring countries of Sri Lanka (51) and Pakistan (119).

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