Chapter 5
Patient Guidance and Remote Care With AI and AR

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ABSTRACT

This chapter presents an exploration into enhancing patient care and training through artificial intelligence (AI) and augmented reality (AR) technologies. By introducing an AI and AR-based bot, this innovation not only aims to transform medical training for professionals but also seeks to revolutionize patient experiences with in-campus navigation and remote ward management. The bot leverages natural language processing (NLP) and machine learning for personalized instruction and utilizes AR for immersive simulations and real-world interactions. The bot integrates with TV displays to present a digital human avatar for interactive learning and patient guidance. Additionally, it facilitates in-campus navigation, aiding patients in effi-ciently accessing healthcare facilities and services, and builds on the concept of

remote care for improved patient monitoring and care. This chapter will discuss the development, benefits, and potential of these technologies to significantly enhance learning outcomes, patient satisfaction, and the efficiency of healthcare delivery.

INTRODUCTION

Artificial Intelligence (AI) and Augmented Reality (AR) are having a profound impact on healthcare by improving the accuracy of diagnoses, boosting patient care, and revolutionizing medical training. These technologies enable sophisticated, immediate support during medical procedures and customized treatment regimens by incorporating vast amounts of data and prediction algorithms. The integration of AI into healthcare systems has resulted in significant enhancements in diagnosis and treatment plans. This is achieved through the utilization of advanced algorithms and huge datasets, which assist in making informed decisions and accurately predicting patient outcomes (WHO, 2019). AR enhances the actual world by superimposing digital information, offering immediate support during surgeries and other medical procedures. This capability allows medical professionals to visualize patient anatomy in unprecedented ways, thus enhancing their precision and effectiveness (World Economic Forum, 2024). These technologies are minimizing subjective judgments in diagnostics and enhancing the precision of medical interventions. As a result, they are leading the way towards personalized and exact medicine, offering the potential for a future with significantly fewer medical errors and greatly improved patient care (McKinsey & Company, 2020).

AR's role extends into patient guidance and remote care, offering virtual consultations and continuous health monitoring, which are essential for managing chronic conditions and serving aging populations. This technology assures the availability of healthcare services in locations that lack sufficient resources, by utilizing interactive technologies that simplify intricate medical information, hence fostering patient education and engagement. AI-driven remote monitoring solutions have the capability to continuously monitor patient health data in real-time. This enables healthcare practitioners to receive timely alerts about potential difficulties before they reach a critical stage, allowing for prompt interventions (Thoughtful AI, n.d.). This not only simplifies interactions with healthcare systems but also ensures ongoing patient involvement from home, minimizing the need for in-person hospital visits. At a more basic level, such technologies can also track a patient's location in various settings including their whereabouts, tracking fall risk, sleep patterns, pulse oxygenation which can also help in preventing more serious medical ailments.

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