Chapter 5
Adaptive Devices for Artificial Intelligence of Medical Things

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ABSTRACT

Adaptive devices and Artificial intelligence in the realm of medical field have become crucial for enhancing healthcare delivery and patient outcomes. As the virus are evolving with time, it is necessary for our current healthcare system to evolve with it as well. Utilizing artificial intelligence paired with advanced machine learning algorithms incorporated inside a device which can adapt itself based on the instructions from AI might be our best chance to counteract limitations of our current healthcare system. Through Artificial Intelligence of Medical Things (AIoMT) hope to achieve new heights of healthcare systems which significantly. Adaptive devices include advanced health tracking wearables that track vital signs of the patients which can be used as input for the algorithm. However, many several challenges persist,

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including data security concerns, reliability of algorithm, limitations of hardware and more importantly integrating it with public domain. This chapter would explore many possible and most efficient solutions to the problems regarding AIoMT

1. INTRODUCTION

Adaptive devices and artificial intelligence have emerged as a new key which can unlock new realm of medical technology. In recent years we have seen a rapid growth in artificial intelligence and machine learning, which has allowed surpassed the limitations of traditional diagnostic methods. Given the rapid evolution of AI, it will soon be possible to accurately and efficiently identify diseases. Even though AI is evolving at a rapid pace it might not replace human doctors, but it will definitely help doctors to make proper judgements. The AI machines are more precise and accurate than humans in certain scenarios, which can help doctors to increase the chances of success in surgeries.

During diagnosis or surgery, AI can monitor the condition of patient which will give doctor an opportunity to prioritize his focus on critical part of the surgery. As AI are machines which are capable of doing repetitive tasks which humans find tedious, they can be used to handle enormous amount of such tedious works. AI implemented systems are already being used to handle large number of patients which do not require guidance from a doctor for basic diseases which already have a working diagnosis. AI chatbots have emerged as new consultants for such minor issues, as the technology has advanced it is now cheaper and easier to provide everyone with such services free of cost. The time saved by such AI implemented systems can be used by human doctors to treat more patient which require serious attention. For the patients who are undergoing treatment which requires constant monitoring, the hospital may not be able to facilitate such services can use AI implemented systems to monitor patients.

AI is now able to merge nano technology and health systems to identify early stages of cancer in humans. This significantly increases chances of complete recovery from cancer as diagnosis can be started before the cancer reaches non-treatable stages. As the AI and nano technology continue to evolve it will make treatment affordable and available to everyone.

AI-based radiodiagnosis using chest X-rays has shown great potential in identifying lung conditions such as pneumonia, tuberculosis, COVID-19, and lung cancer with improved accuracy and speed. The integration of AI not only enables efficient analysis of medical images but also supports overburdened healthcare systems, especially in resource-limited settings. Additionally, AI assists in monitoring patients, streamlining repetitive tasks, and handling high patient volumes through systems

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