

## Accelerated Computing A Biomedical Engineering and Medical Science Perspective

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**Abstract.** *The rapid advancements in technological computing have brought about significant growth and transformation in various domains of engineering, particularly in the field of medical science and human health. With the progress in computer vision, image processing, machine learning, deep learning, and data science, there has been a revolutionary change in healthcare, addressing a wide range of medical conditions and human anatomy perspectives. The integration of these technologies has not only improved medication and disease control but has also provided solutions for complex tasks and issues related to human anatomy threats in the health sector. This research focuses on the impact of accelerated computing in biomedical engineering, providing insights into the modern utility of toolsets in Bioinformatics and mechanics with artificial intelligence within medical science and also diving into understanding the human anatomy. Additionally, it explores the concept of functional genomics and its potential to provide insights into future disease and health issues, paving the way for advancements in healthcare for the foreseeable future and beyond.*

**Keywords:** Artificial Intelligence (AI); Biomedical Engineering (BME); Deep Learning; Functional Genomics; Machine Learning.

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### 1. Introduction

The context of this research revolves around all the various domains associated within the realm of biomedical engineering. Biomedical engineering, also known as medical engineering, combines principles of engineering and design with medicine and biology to address healthcare challenges. It encompasses a wide range of applications, including diagnostics, therapy, and the management of medical equipment in hospitals.

As a relatively new field, biomedical engineering has evolved from an interdisciplinary specialization to become a distinct discipline. Much of the work in this field involves research and development in various subfields. Biomedical engineers contribute to advancements such as biocompatible prostheses, medical devices for diagnosis and treatment, imaging technologies like MRIs and EKG/ECG/EEGs, regenerative tissue growth, and the development of pharmaceutical drugs and therapeutic biologicals.

The field of biomedical engineering plays a crucial role in advancing healthcare and improving patient outcomes. Biological engineering, also known as bioengineering, applies the principles of biology and engineering to develop practical and economically viable products. This field draws knowledge and expertise from