Big Data and Robotics in Healthcare

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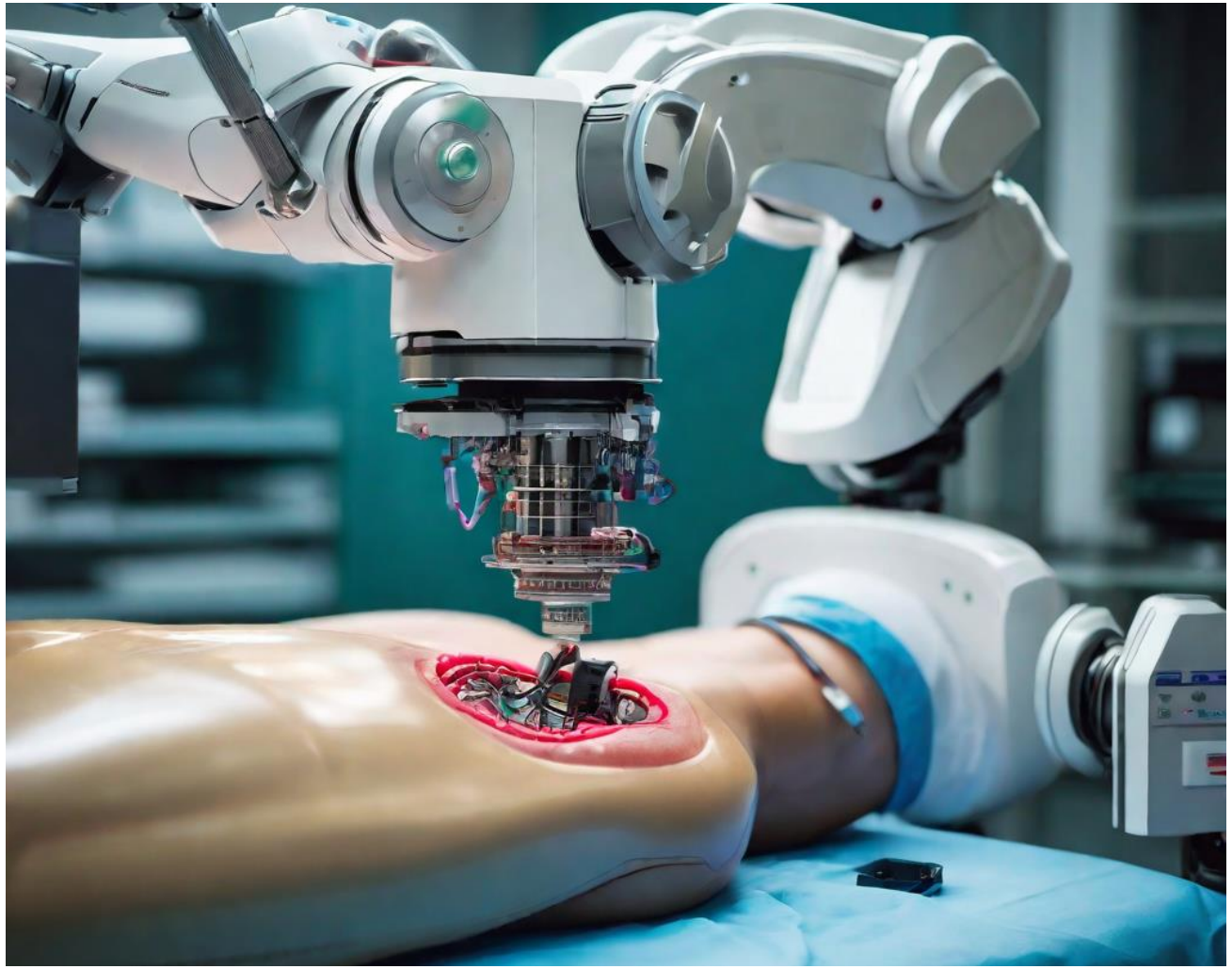
Introduction

•The combination of big data and robotics is transforming the healthcare industry, offering new opportunities for diagnosis, treatment, and patient care. This paper explores the ways in which big data and robotics are changing healthcare and argues that these technologies have the potential to transform the field. we also discuss the overview of current applications of big data and robotics in healthcare, as well as a discussion of the ethical and social implications of these technologies.



Scope

- Comprehensive analysis of the potential of robotics and big data in healthcare.
- Examination of advantages, disadvantages, technological challenges, and opportunities.
- Discussion on ethical and legal considerations in the healthcare sector.

Thesis

Emphasis on responsible use for creating a personalized and accessible healthcare system.

Arguments

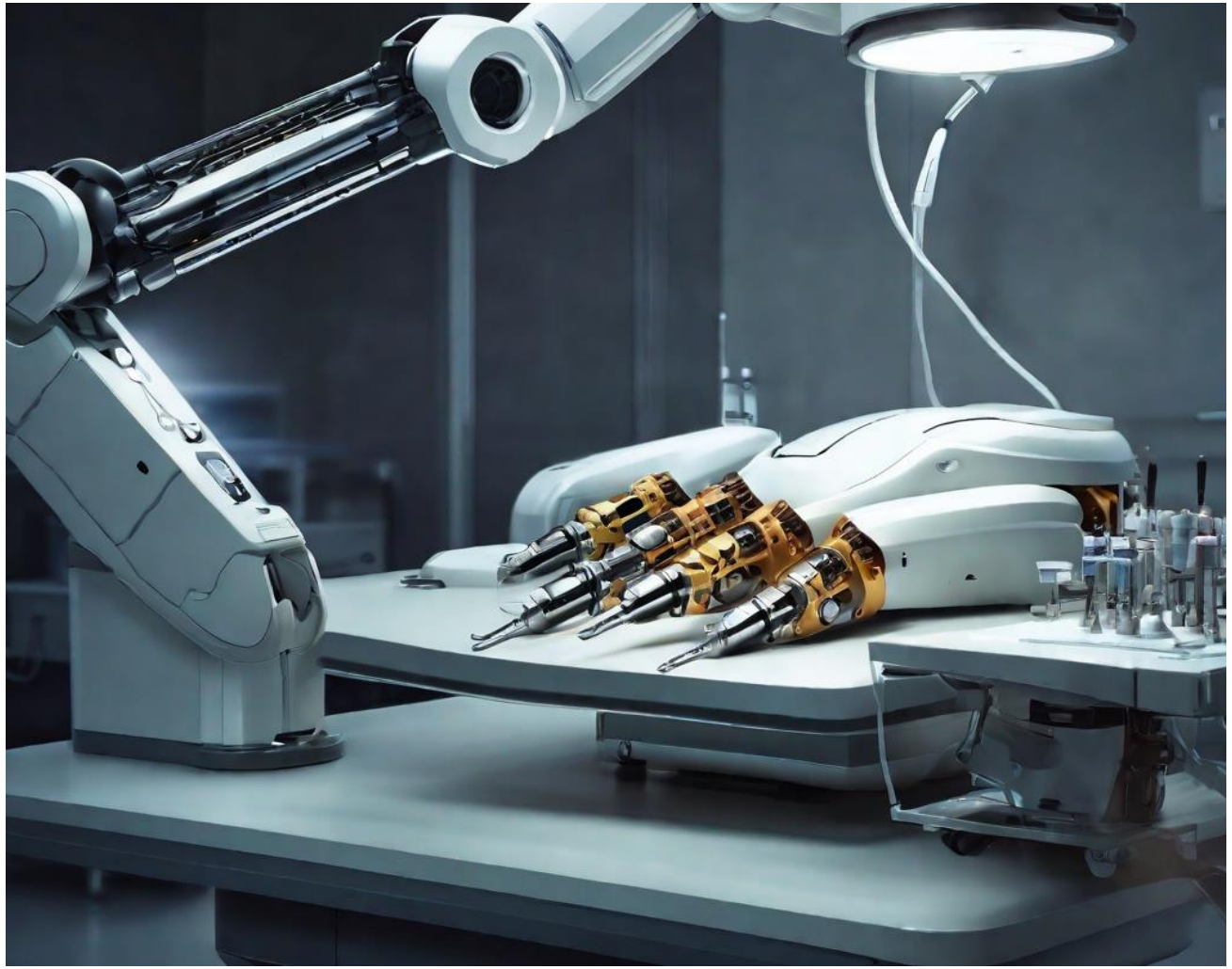
- Big data and robotics have the ability to completely change the healthcare sector by reducing prices, improving the treatment of patients, and increasing efficiency of treatment. The challenges that are shown by researchers like Alexandru et al., Morgan et al., and Bohg et al. show how the healthcare sector is growing.
- Individualized treatment provides useful advantages that are made clear by Beasley's research on the accuracy of medical robots and Carnevale et al.'s studies on the importance of big data in robotic-assisted gait training. The worldwide effect is shown by studies by Denecke and Baudoin, Wang and Wang, and Batko and Ślęzak, which show how AI and data-driven decision-making contribute to the development of healthcare. Puaschunder's focus on international and legal issues shows the necessity of a complete framework.

Technical details

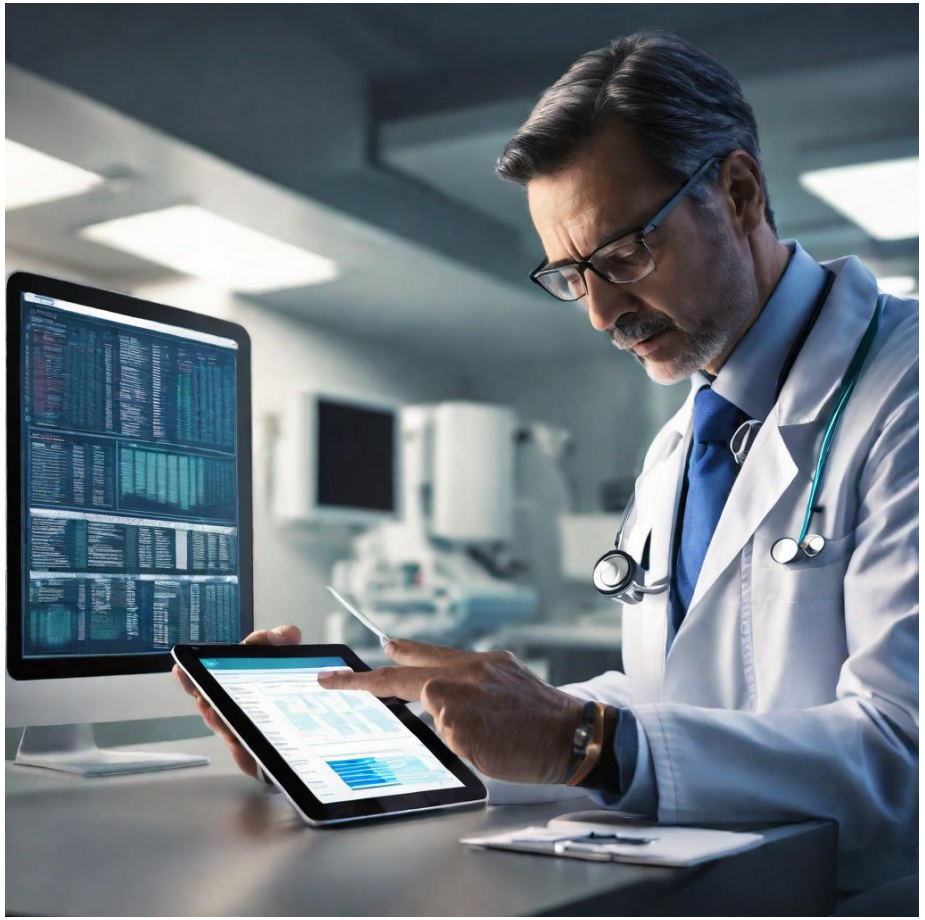
Protocols for gathering, storing, and analyzing data must be established in order to ensure compliance with laws and privacy regulations.

Artificial intelligence-driven image processing classifies and labels objects in photos to assist doctors in treating patients.

Learning about medicine, observing data, and organizing surgeries are all made simpler by virtual reality (VR) and augmented reality (AR). This demonstrates well how artificial intelligence is transforming the use of technology in healthcare.



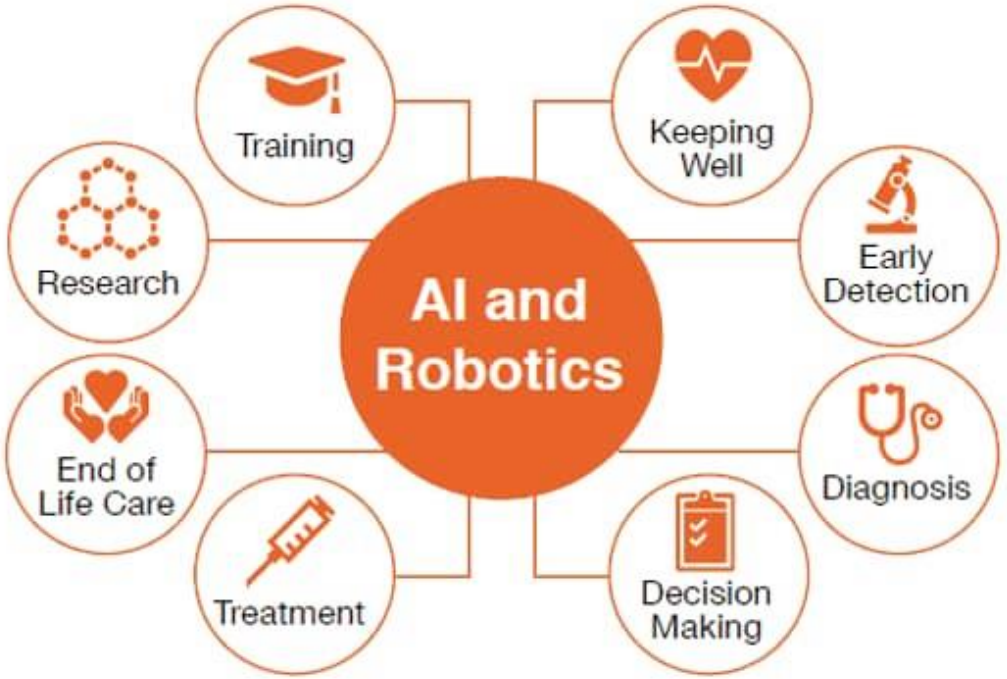
Obstacles



- Data Privacy and Security concerns
- High cost of implementation and maintenance of technology
- Resistance from healthcare providers to adopt new technology and change established practices
- Limited availability of skilled professionals to operate and maintain the technology

PROMISE

- Individualized health care
- Better Health Care and Medical Diagnoses
- Less expensive health care
- Better efficiency and decision making
- Early disease detection

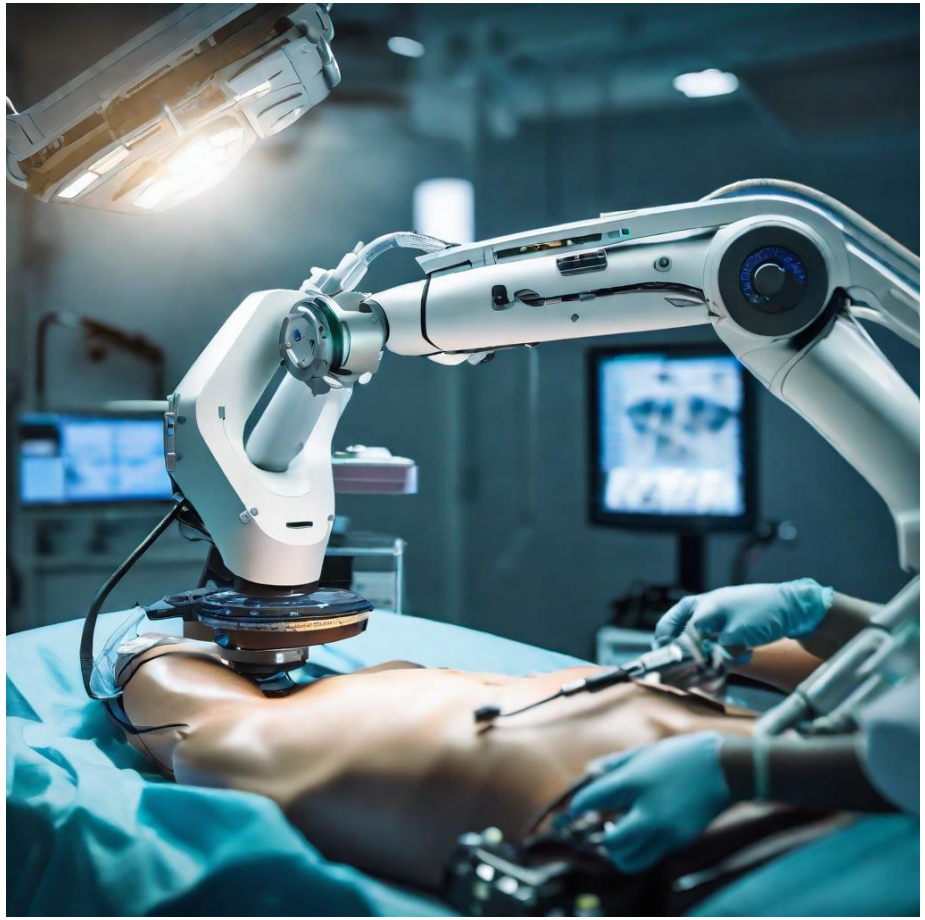


SUGGESTED COURSE OF ACTION

- Allocate government resources
- Promote awareness among healthcare professionals
- Ensure data security
- Standardize data types and protocols
- Invest in education and training

Conclusion

- The combination of big data and robotics in healthcare has the potential to revolutionize the industry. With the ability to collect and analyze vast amounts of patient data, healthcare providers can make more informed decisions and provide personalized treatment plans. Robotics technology can also improve patient outcomes and reduce the workload on healthcare professionals.
- However, it is important to address concerns about data privacy and security, as well as potential job displacement for healthcare workers. It is crucial that we approach the integration of these technologies with caution and consideration for all stakeholders involved.



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