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AI and ML in Healthcare: Redefining Diagnostics, Treatment and Personalized Medicine

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Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing healthcare by enhancing diagnostics, treatment planning, and personalized medicine. Traditional medical practices often rely on generalized treatment approaches and manual diagnostic processes, which can be time-consuming and prone to human error. AI-driven models, powered by deep learning and predictive analytics, enable faster and more accurate disease detection, improving early diagnosis and patient outcomes. Machine learning algorithms analyze vast amounts of medical data, including imaging, genetic information, and electronic health records, to tailor treatment plans based on individual patient profiles. Additionally, AI enhances drug discovery, robotic-assisted surgeries, and real-time health monitoring through wearable technologies. This study explores the transformative impact of AI and ML in healthcare, highlighting key advancements, challenges such as data privacy and algorithmic bias, and the potential for more efficient, accessible, and precise medical care. The integration of AI in healthcare is not only redefining medical practices but also paving the way for a future of truly personalized and data-driven medicine.