

The Evolving Role of Artificial Intelligence in Clinical Diagnostics

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Abstract. Artificial intelligence (AI) is transforming clinical diagnostics by enhancing accuracy and efficiency. This article explores the integration of AI technologies in diagnostic processes, highlighting their impact on clinical decision-making. It reviews recent advancements in AI-driven diagnostic tools and discusses their potential to revolutionize healthcare delivery. The article also considers ethical and regulatory challenges associated with AI adoption in clinical settings.

Keywords: artificial intelligence, clinical diagnostics, machine learning, healthcare delivery, ethical challenges

Introduction

The integration of artificial intelligence (AI) in clinical diagnostics represents a paradigm shift in healthcare, offering new possibilities for improving diagnostic accuracy and efficiency. AI technologies, such as machine learning and natural language processing, are being increasingly utilized to analyze complex medical data, aiding clinicians in making informed decisions. These advancements have the potential to enhance patient outcomes by facilitating early detection and personalized treatment strategies. However, the adoption of AI in clinical settings also raises ethical and regulatory concerns, including data privacy and algorithmic bias. This article examines the evolving role of AI in diagnostics, highlighting key developments and their implications for clinical practice. It also discusses the challenges and opportunities associated with the widespread adoption of AI-driven diagnostic tools.

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