Ethical, Philosophical, and Practical Applications of AI in Healthcare

A Case Study on IBM Watson for Oncology

Jade Sanchez
Mustafa Kerem

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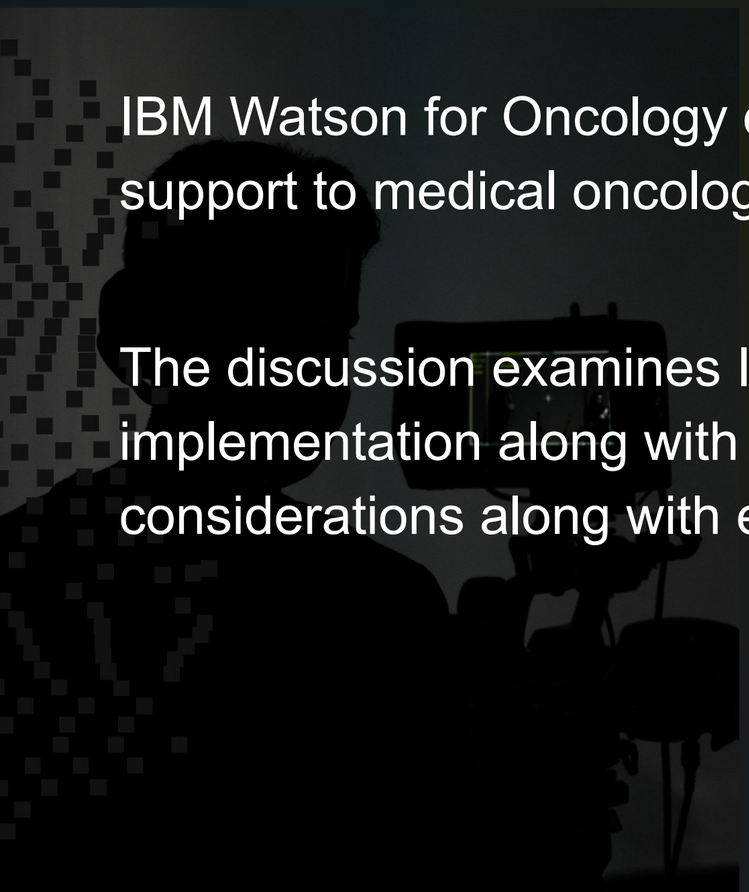
Introduction

Medical care experiences a transformation through Artificial Intelligence (AI) because this technology enhances diagnostic accuracy along with treatment solution generation and healthcare system administration processes.



IBM Watson for Oncology operates as an AI system that provides data-driven support to medical oncologists regarding treatment decisions.

The discussion examines IBM Watson for Oncology from a perspective of implementation along with its benefits and challenges along with ethical considerations along with emerging trends.

What is IBM Watson for Oncology?

AI-driven clinical decision support system operates as a product by IBM.

NLP functionalities of machine learning enable the analysis of massive medical literature databases.

Blueprints for evidence-based treatments are made available to professionals who work with cancer patients.

The system exists to support medical choices as an enhancement tool instead of performing doctor substitutions.

Implementation in Healthcare

The data training of IBM Watson for Oncology took place exclusively with information from Memorial Sloan Kettering Cancer Center.

The system operates within medical facilities worldwide to produce assistance during cancer treatment planning.

IBM Watson for Oncology utilizes both structured information such as medical records together with unstructured sources including research papers and clinical notes.

The technology assists medical professionals to select individualized treatment plans for their patients.

Benefits of IBM Watson for Oncology

Enhanced Diagnostic Accuracy

The analysis of considerable medical data and literature by AI produces precise knowledge.

Personalized Treatment Plans

Medical recommendations from this system consider both historical patient information and patient medical records specifically for each individual.

Increased Efficiency

The time required to process research and patient records manually becomes minimized.

Global Accessibility

Helps oncologists in regions with limited access to expert

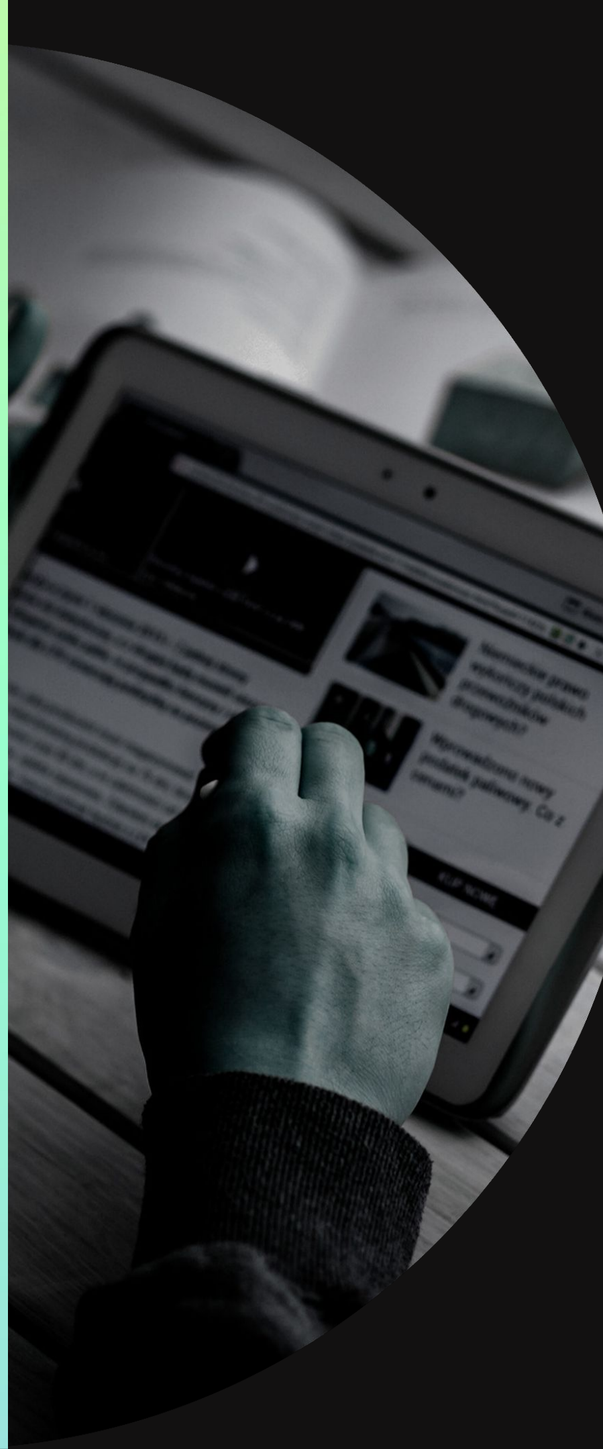
Challenges and Limitations

AI functionality depends directly on both the quality and the amount of training data that is accessible.

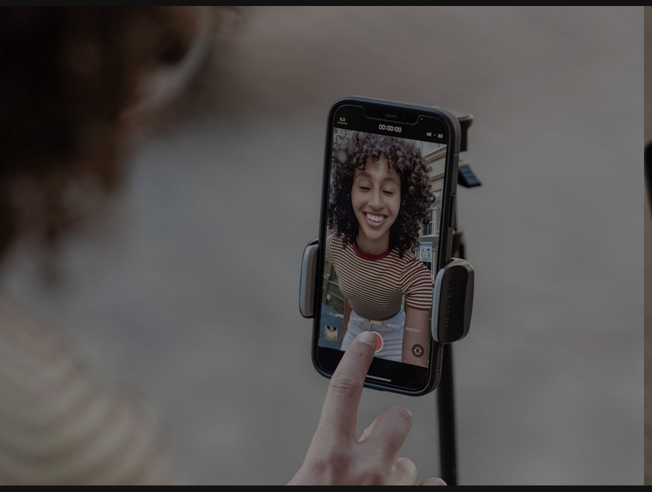
The integration process encounters challenges since it needs to match with current hospital systems and electronic health records.

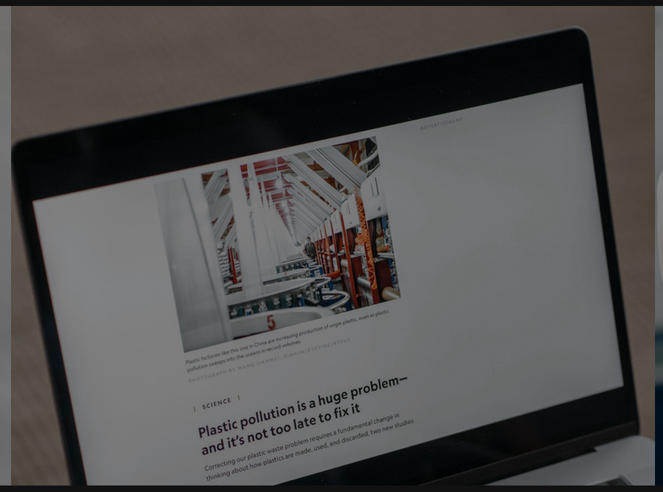
Artificial intelligence models show biases that emerge through unbalanced training information which leads to inequities in medical treatment delivery.

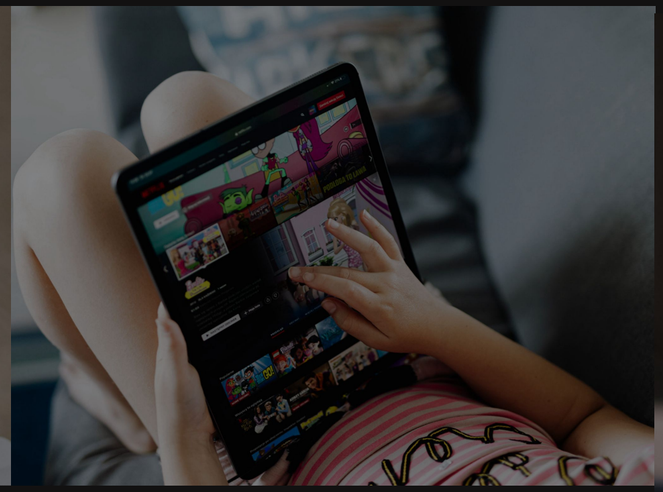
Some medical staff have doubts about embracing AI-driven advice because of an apparent trust gap between healthcare providers and doctor-AI systems.



Ethical Considerations







Patient Autonomy

The use of AI systems should help doctors make decisions but they should never seek to complete human judgment during patient treatment.

Data Privacy & Security

Patient data management systems must follow rules established by HIPAA and similar regulations.

Bias & Fairness

The system should deliver equal and impartial treatment opportunities for all population groups.

Accountability

Who bears responsibility when AI recommendation systems produce wrong treatment decisions must be established.

Societal Impact

The system delivers expert treatment recommendations and knowledge to all patients regardless of their service area status. The excessive dependence on AI technology potentially decreases the necessity for human medical expertise at some points.

Healthcare staff face employment insecurities since they worry that automated diagnostic and decision-making systems will decrease job requirements in their field.

Future Trends in AI for Healthcare

Medical experts require better understanding of AI recommendation systems so doctors can receive interpretable and transparent explanations about their decisions.

Better guidelines should exist to maintain ethical and responsible utilization of AI technologies within healthcare.

AI must receive better capabilities to process current patient data located across diverse medical information systems.

AI functions today as a tool to assist medical experts through AI-Doctor collaborations which remain separate from traditional replacement systems.

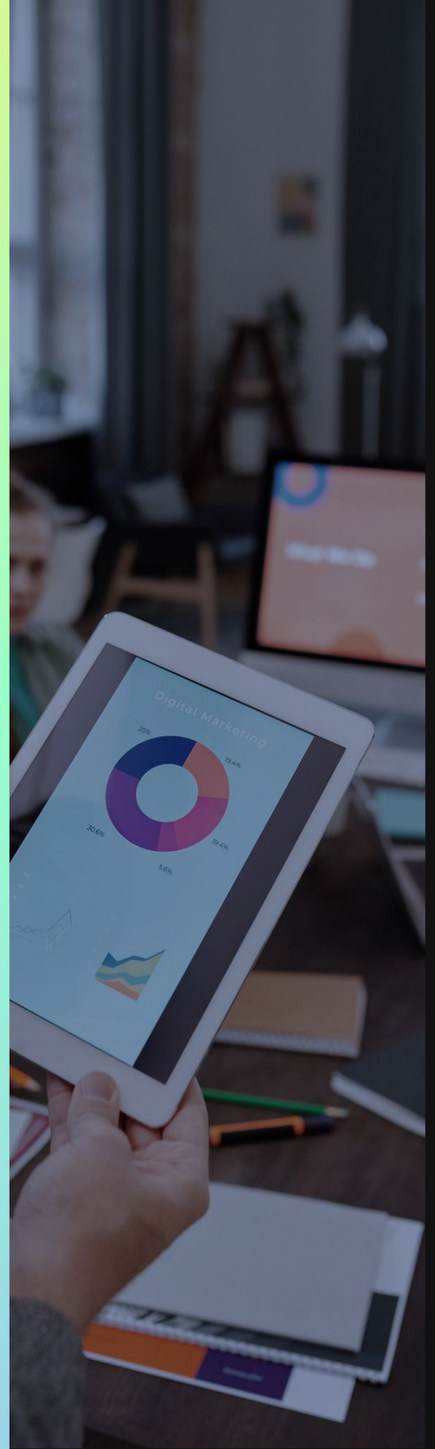
Recommendations

AI's recommendations require training data which includes extensive range of patient information to eliminate biased performance.

The training process for medical professionals should receive education regarding their ability to properly utilize AI-generated insights.

Data protection strategies should receive strengthened protection against unauthorized patient data breaches and misuse.

Foster Collaboration: Encourage partnerships between AI developers, healthcare professionals, and regulatory bodies.



Conclusion

Healthcare professionals use AI tools to gain better efficiency as well as make improved diagnoses and create better treatment plans.

IBM Watson for Oncology showcases both beneficial aspects as well as difficulties with AI applications in medical fields.

AI integration will succeed in the future by resolving all ethical issues and implementing responsible AI deployment systems.

Patient care requires optimal outcomes when humans collaborate with AI solutions at the right rates.

THANK YOU!

Jade Sanchez
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