

Artificial Intelligence in Healthcare: What to Consider

Reece Harrel

Mentor: Dr. Blayne Mayfield

Oklahoma State University, Department of Computer Science

Introduction

Artificial intelligence (AI) has become a heavily debated topic in the field of computer science as well as in the general news. The use of AI dates back to the 1950s, but as technology advances, the implementations for AI in healthcare multiply. It has the ability to enhance, or replace human intelligence in some cases. But what should be considered about AI before continuing its implementation into healthcare?

Background

Artificial intelligence (AI) is using technology to simulate human intelligence.¹

AI systems are made up of a series of algorithms. These algorithms take in input, and through "training" produce output.

Examples of AI in medicine:

- Robotic assisted surgery²
- Diagnosis in various fields, including radiology and pathology³
- Improve efficiency in clinic⁴

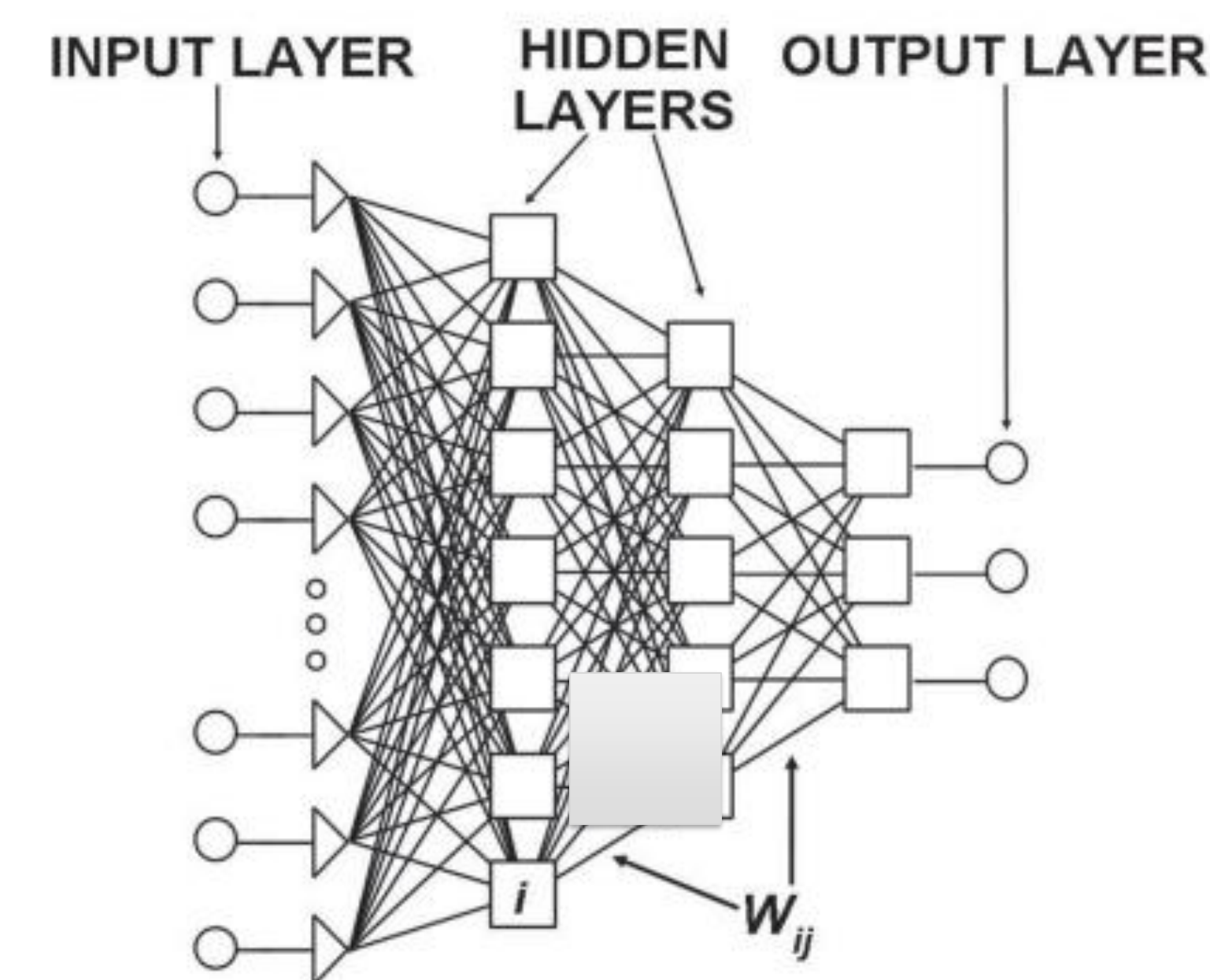


Smart Tissue Autonomous Robot (STAR), Sheikh Zayed Institute for Pediatric Surgical Innovation, Children's National Health System

Issues

• Black-Box⁵

In AI, there is often discussion of the black-box aspect. This refers to the often unknown nature of how the outputs are reached in AI systems.



Amato F, Lopez A, Pena-Mendez EM, Vanhara P, Hampl A, Havel J. Artificial neural networks in medical diagnosis. *J of Appl Biomed.* 2013;11:47-58.

• Bias⁶

The output of an AI system is dependent on the input used to train the system. Choosing the wrong set of input data can greatly affect the output and validity of the system.

• Trust⁷

Introduction of new technology to the patient- healthcare provider relationship will shift dynamics.

Example of ChatGPT:

As an AI language model, I do not have opinions or beliefs, but I can provide some context around the trustworthiness of AI.

Like any technology, AI is not inherently trustworthy or untrustworthy.

Its trustworthiness depends on a number of factors, such as the quality of the data used to train the AI system, the transparency of the

system's decision- making process, and the level of human oversight and intervention.*

*Excerpt of ChatGPT response to "Should we trust AI?"

AI should be viewed as a **tool in healthcare**, such as an MRI or ultrasound. There is definitely a place in medicine for the innovative technology in AI. But, it is important to work toward AI **supporting** the healthcare providers, **not replacing** them.

Conclusions

AI has the potential to reshape medicine as it is known currently. As more research is conducted, it is important to also establish ethical guidelines to create a place for AI in the field of medicine.

AI is a powerful tool in medicine. Yes, there are ethical considerations that should be considered. But, with **mindful** use of the technology the possibilities could help many patients.

To ignore the possibilities for innovation in healthcare with AI would be ethically unsound. There is much good associated with the possibilities, but AI should be **implemented cautiously**.

Literature cited

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