

Artificial Intelligence in Healthcare: Balancing Technological Innovation with Clinical Judgment

From Gen X to Gen Z the meaning of the term “ए आई” has changed. A quick google search for the term “ए आई” (Fig. 1); brings this fact out. What was, in the “good old days”, the sound of a call out to our mothers in our native language, now brings to mind; “Artificial Intelligence (AI)” and technologies like machine learning, natural language processing and computer vision, which are used in many applications like chatbots, voice assistants and data analysis, making it a part of our everyday lives.



Figure 1: Changing meaning of the call out “ए आई” in current times.

Having said and acknowledged this, it becomes obvious that as doctors we familiarize ourselves with the new meaning of the sound. As is so famously said by Jesse Ehrenfeld, the President of the American Medical Association (AMA); “Physicians who use AI will replace those who don’t”.¹ Further, Mr. Brij Pandey in his famous linked in post has elucidated the 12 “must know” AI terms for all of us.²

The most pertinent ones, in my opinion include “Large Language Models”, which are gigantic AI systems; which are

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“trained” using vast datasets which power tools like ChatGPT. These models, not only comprehend; but also generate human-like text; and have thus laid the foundation for modern AI conversations. The information from such models is only as good as the quality of the questions posed to them. Hence, the importance to understand and learn, what is “Prompt Engineering”; the art of crafting effective instructions or constructing a proper question for the AI system to answer. Indeed, a good question for the AI system (good prompt engineering) combines clear instructions in the right context; akin to those given to our most sincere and enthusiastic first year residents. Having procured an answer from the AI system; the “chain of thought” of the AI system i.e. the way the AI system has broken down the complex problem posed by us, to it into step-by-step reasoning; needs to be checked or asked for; which improves accuracy and decision making based on the AI system. “Zero shot” refers to the ability of the AI system to perform tasks which it was not specifically trained for; allowing these models to perform tasks, answer questions and handle situations that it has not explicitly seen before. The user has the power to control the “temperature” of the AI; to strike a balance between the “predictability” and the “creativity” of the AI system.

Finally, as clinicians, we should be aware of situations which are referred to as “Hallucinations”; where the AI system, confidently generates information that sounds plausible but is factually incorrect; and managing this situation is the immediate and most challenging task to those of us beginning to use these AI systems. Awareness of the fact that there exists, “Machine Bullshit”; a tendency of AI systems to make unsubstantiated claims and “mislead with partial truths” is also of paramount importance.

We, end this, with the most pertinent aspect while we use AI in medicine; which is the legal stand. Recently, our Supreme Court judge, Justice Ujjal Bhuyan sought to remind us, the medical practitioners that the legal responsibility for diagnosis and treatment of patients will continue to rest with us and not machines, despite the rapidly growing use of artificial intelligence which is transforming healthcare.³ We need to understand and also subtly inform our patients that (at least as of now) AI remains only an assistant - the final responsibility always lies with the licensed medical practitioner.

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