AI IN THE MEDICAL DOMAIN: NOT A QUICK FIX

Much of blockchain and 3D printing are now part of the lexicon in the Fourth Industrial Revolution. Artificial intelligence (AI) is another hugely visible, discussed, and debated application predicted to deliver a healthcare revolution—from aiding drug discovery, diagnostics, patient engagement, to detecting adverse events. However, there are significant associated risks, which, if not appropriately and immediately addressed, might delay the benefits that AI has to offer, especially in the medical domain in life sciences. The medical domain deals with data heterogeneity. So far, AI has been deployed in visual and numerical applications of data only in pilots for visual diagnostics, medical record mining, and biostatistics. The success of these pilots warrants a deeper evaluation of AI before mass hysteria takes over.

The application of AI in textual data (from varied sources such as biomedical literature, social media, web search logs, etc.) in a number of life sciences processes such as pharmacovigilance, medical writing, product labeling, etc., sees far fewer success stories, with a significantly limited scope. Clinical context and interpretation are critical to sensibly process medical content, whether it is voice/speech-to-text conversions, data extraction from unstructured or semi-structured sources, medical bots or structured content authoring. This implies that AI and contemporary technologies by themselves are not enough. Contextualizing these technologies with nuanced medical expertise is important, something that the industry has begun started to see for themselves. For example, accurately contextualizing the treatment drug versus the suspect drug/concomitant medication, indications/symptoms versus adverse events, etc., needs the right level of medical/clinical understanding and application that only human clinical expertise can bring.

However, there are areas where AI has an immediate and significant impact. AI can be contextualized and customized for real-time voice/speech-to-text conversions to drive both efficiency and efficacy of safety/medical information and product quality complaint case intake. Similarly, data extraction and auto-population of data from structured, semi-structured, and unstructured sources in case processing are other areas that have tremendous potential for AI, which drive higher quality and regulatory compliance outcomes at significantly reduced efforts and time.

AI CAN HAVE A HUGE IMPACT ON LIFE SCIENCES FUNCTIONS

Pharmacovigilance

Medical Writing

Labeling

The application can have a much broader, wider, and deeper impact in other areas. For example, the industry is exploring AI-led technologies for response generation of medical queries and search and retrieval of document/information from content repositories, significantly navigating multiple sources of truth to provide accurate and appropriate responses, impacting the effectiveness and efficiency of the medical information process. This has the potential to perhaps evolve over time into being the medical Siri/Alexa.

So, should AI assume the mantle of the next superhero in the medical domain? Only long-drawn relationships, deep interpretation of raw textual data, and real-world application hold the key to answering this question. There are only a few quick fixes, and organizations will have to combine AI with human medical expertise.

OVER TIME, THE INVOLVEMENT OF HUMAN EXPERTISE MAY TAPER BUT IS NOT LIKELY TO CAUSE MAJOR REDUNDANCIES IN THIS SPACE. PROCESS AUTOMATION WILL ONLY COMPLEMENT DOMAIN EXPERTISE FOR PLAYERS IN THIS AREA.

Organizations that have disproportionate expectations and anticipate unrealistic benefits in the immediate term by utopian promises of pure-play technology, in the absence of sufficient medical relevance, will most likely be in for a disappointment. Reasonable calibration of expectations and measured journeys of making technology medically relevant on context and interpretations hold the key to unshackling the superhero in AI, especially in the medical domain.

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