

Artificial intelligence in medicine and radiology: is that the light at the end of the tunnel?

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Opinion

I clearly remember with my full of excitement and enthusiasm while I obtained my first Yahoo e-mail address exactly 20 years—only two decades—ago. Time does fly, it really does. If somebody told me on that time that we would be able to speak face to face over the phone using mobile apps; few of us would believe that—except NASA scientists—as they knew they had already had the technology. History has been repeating again in the IT era tremendously with all its dizziness. People are using AI enhanced devices without knowing it like Siri in Apple mobile phones, voice recognition applications during medical reporting, answer phone automatic messages, tele secretary, driverless cars and trains, semi-automatic flying aeroplanes, intercontinental missiles, robotics, etc. AI is already everywhere, whether accept or deny. Artificial intelligence (AI) is an umbrella term for machine learning and deep learning. In this article, AI always referred deep learning convolutional neural network (CNN). It is a basically a software then it has capability of create new algorithms to operate. AI was firstly introduced by Alan Turing in 1950's and has been evolving since then and the bursting point—to me—was Google's Alpha Go beats several times a Go master, Lee Sedon, a world master of the game, a complex strategy game much more difficult than that of the chess.¹ Than all went mad amongst the data scientists and data engineers, obviously it gets lots of attraction almost every single sectors from education to defence to trade and finally spread to sacred Medicine, not easy to touchable protected field, as physicians love to create a kind of iron shield around them and majority love the “keeping their status” It does not matter whether you are in denial mode or full of excitement about this innovation, but this is a crystal clear fact that a light is at the end of the medical tunnel and we are approaching it very fast, like a light speed. In radiology and in medicine generally, AI made the second leap in the radiology history after the invention of X-Rays by William Conrad Roentgen in the beginning of the last century.

What's going on right now? We all know in medicine and particularly in Radiology, there have been ongoing researches, particularly since 2015. There re lots of boomed publications, from prospective studies to opinion/perspective articles in various highly credible medical journals. Eg. the NEJM, the Lancet, the BMJ, Radiology, AJR, etc. There are ongoing talks and approval procedures in place amongst the giant vendors, physicians and the FDA. The very first AI system was approved by FDA to detect diabetic retinopathy² and then spread to dermatology, oncology, radiology, etc. In particularly in radiology, AI has already a room for operation. In her speech at a Radiological society of North America (RSNA) annual congress, Dr Rao VM stated “AI and Machine Learning (ML) applications are already proving themselves extremely useful in radiology, and we have only begun to scratch the surface. These applications provide tools to make us more efficient, freeing up time for radiologists to become more visible and patient-centred. Technological innovations are driving toward making imaging faster, safer, quantitative, precise and affordable. Advances in

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imaging biomarkers combined with genomic information will allow us to make a more meaningful contribution to personalised medicine in the years to come”.³ Some physicians would see it as a big threat, like the medical jobs would eventually be replaced by clever AI or even robotics. Their fears are not pointless. In fact, there is a one Chinese made robot called Xiaoyi, an AI-powered robot in China, has recently taken the national medical licensing examination and passed with a high score of 456 points, which is 96 points above the required marks.⁴

Interestingly Grace K, et al.⁵ published an article advocated AI will surpass human being in many areas in the next decade, such as translating languages (by 2014), driving a truck (by 2027), writing a best seller book (by 2049), working as a surgeon (by 2053), etc. in their survey article in which participants were AI researchers. They also predicted that there is a 50% chance of AI outperforming humans in all tasks in 45 years and automation of all human jobs would be in 120 years' time. Asian participations of the study predict those dates much sooner than North Americans.⁵ AI has undisputable room in the medicine and radiology and seems to be a real light at the end of the tunnel, and one of the big historic leaps in the medicine and in radiology particularly, and forthcoming years will be a proof of this, how will we control it properly would seem to be a dilemma for the years to come.

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References

1. *Alpha Go beats Lee Sedol in Seoul, South Korea.* 2015.
2. Hillman L. *First artificial system approved by the FDA to detect diabetic retinopathy.* 2018.

3. Daily Bulletin RSNA. *Q&A with RSNA president Vijay M. Rao, MD*. 2018.
4. Dom Galeon. *For the first time, a robot passed a medical licensing exam*. 2017.
5. Grace K, Salvatier J, Dafoe A, et al. When will AI exceed human performance? *Evidence from AI experts*. 2018.