Correspondence

Artificial intelligence in medical imaging: Game over for radiologists?

Artificial intelligence (AI) in medical imaging has gained increasing interest in the latest years [1] and a question is increasingly arising among radiologists: will a time come, when there will be no more need for them? Already in 2016, Geoffrey Hinton, a renowned cognitive psychologist and computer scientist, predicted a world without radiologists [2]. But how should we consider his prophecy? Unbounded optimism due to his active involvement in the field, or a lucid prediction?

To answer this question, there is conceivably no need for a crystal ball. In another important field, AI has already shown his limits: the self-driving cars.

With the lofty goal of “zero mortality”, bombastic announcements were made in the latest years. The CEO of Tesla, Elon Musk, declared in 2017 that the capability of full autonomous driving was a short 3–6 months away [3]. Also, the CEO of the Italian Business Division of Volvo stated that self-driving is expected to turn road accidents to zero by 2020 [4].

To date, these entire optimistic capabilities are still far from coming to fruition, raising doubts even on the practicability in a mid-term future. Steve Wozniak, co-founder of Apple, recently declared that he "stepped way back on this idea of full autonomous cars and has really given up", because “there is simply too much unpredictability on roads for a self-driving car to manage” [5].

The same amount of unpredictability pertains to the field of medical imaging. As for car industry, we currently see unlimited perspectives, but very few hard facts. One should expect a gradual process for integrating AI tools into clinical radiology, the way semi-automated methods have been integrated in the past (e.g. iterative reconstruction algorithm).

At the end of the path, the most conceivable scenario is a modification in the interpretation of medical imaging. Predictive models will be established, leading to specific flow charts providing clinicians with a likelihood estimate of pathological conditions. Hence, AI would systematize the interpretation process in order to reduce error rates, which will tend to zero, but without even reaching the “error-free” goal.

It is therefore conceivable that the radiologists will always play a central role in the field of medical imaging, given their unique capability to effectively integrate information coming from automatic and visual assessment. It should be suggested to embrace AI technology in order to become the keepers of images and start another golden age of Radiology.

Disclosure

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Declaration of Competing Interest

None to declare.

References


Federico Caobelli
Clinic of Radiology and Nuclear Medicine, University Hospital of Basel, Petersgraben 4, CH-4031, Basel, Switzerland
E-mail address: Federico.Caobelli@usb.ch.