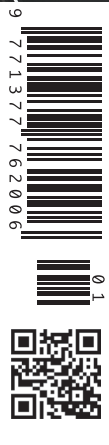




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Leveraging Artificial Intelligence to Elevate Narrative-Based Medicine

Which clinical specialty will be most disrupted by Artificial Intelligence? Will it be radiology or narrative-based medicine? Prof. Mathias Goyen explains.

The avalanche of healthcare data (clinical, imaging, genomic, lab etc) is mind-blowing and only likely to accelerate as precision health matures. Consequently, medicine will become even more data-dependent with the synergy between medicine and Artificial intelligence (AI) - technology getting more pronounced.

Whenever I participate in panel discussions regarding the use of AI in healthcare, we mainly discuss its impact

When AI analyses Facebook posts to predict depression associated language markers, the quality of the diagnosis is comparable to that of a psychiatrist (pnas.org/content/pnas/115/44/11203.full.pdf).

The profile of depression associated language markers is nuanced, covering emotional, interpersonal, and cognitive processes. The growth of social media and continuous improvement of machine-learning algorithms suggest that

The greatest benefit of AI is achieved where most mistakes happen

on radiology, the usual suspect. But which clinical specialty will be disrupted most by AI? Is it really the field of high-tech medicine such as radiology? What about narrative-based (“speaking”) medicine, where the patient visits the doctor and tells them about their ailments?

The reality is that the greatest benefit of AI is achieved where most mistakes happen. And, while we foresee major changes and tangible benefits as radiologists adopt AI, it is not the area of medicine where the most mistakes occur. The biggest source of error is in narrative-based medicine.

Take depression – which can result in pain such as back pain (mayoclinic.org/diseases-conditions/depression/expert-answers/pain-and-depression/faq-20057823) as an example: A patient consults an orthopaedic surgeon because of back pain. After surgery the back pain is still there. Then, on average, it takes more than two years for someone to diagnose depression - a lot of mistakes can be made along the way including unnecessary interventions.

By analysing Instagram profiles, machine learning can diagnose markers of depression as well or even better than a general practitioner (epjdatascience.springeropen.com/track/pdf/10.1140/epjds/s13688-017-0110-z). These results held even when the analysis was restricted to posts made before depressed individuals were first diagnosed.

social media-based screening methods for depression may become increasingly feasible and more accurate.

This is just one example how AI can support and augment physicians outside of radiology, by taking away the data-driven analytical portion of a physician’s work hopefully enabling physicians to spend more time with their patients, thereby improving the human touch in medicine. ■

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Key Points

- Medicine will become more data-dependent with the synergy between medicine and AI getting more pronounced.
- The greatest benefit of AI is achieved where mistakes happen and the biggest source of error is narrative-based medicine.
- Social media-based screening methods may become increasingly feasible and more accurate.
- AI can support and augment physicians outside of radiology.