WHERE WILL AI TAKE US?

Westworld triggers reflections about radiology’s future

BY JOSHUA T. OLSON

When the Radiological Society of North America (RSNA) hosted its 2016 annual meeting in Chicago, among the chief subjects discussed was the evolution of machine learning and its impact on radiology. Session topics touched on key developments in artificial intelligence (AI), including the use of computing technology to model the neural networks of the human brain—a technique labelled “deep learning.” Through deep learning, computers have demonstrated an ability to surpass humans in competitions measuring accuracy of visual recognition.

Not unexpectedly, the infusion of this technology into radiology work has already begun. For example, computer-assisted identification of breast lesions now plays a major role in mammographic screening for breast cancer. At the RSNA meeting, attendees discussed possible future AI applications, including the use of machine learning to correlate imaging findings with clinical data in electronic medical records, as well as with relevant scientific literature—an innovation that would usher in a new era of precision medicine.

Last fall, as a medical student circling the Midwest on the residency interview trail in pursuit of a position in the radiology field, I found myself splitting time between virtually attending the RSNA meeting, preparing for upcoming interviews, and (like many of my colleagues) binge-watching HBO’s new hit TV series Westworld. In this remake of Michael Crichton’s 1973 science fiction thriller, THEME-PARK ROBOTS REVOLT AND BEGIN KILLING PARK VISITORS. The show’s scenic western vistas, juxtaposed with the workings of a futuristic android produc-

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Most importantly, to what degree will radiologists incorporate AI into the processes of making life-or-death health care management decisions?  

Undoubtedly, these are questions we’ll grapple with in the coming years. Until then, I find myself ruminating on a foreboding statement made by Dr. Robert Ford, Westworld’s park designer (played by Anthony Hopkins), in this season’s final episode: “Wasn’t it Oppenheimer who said, ‘Any man whose mistakes take 10 years to correct is quite the man?’ Well, mine took 35.” This character didn’t anticipate that his earlier decisions surrounding AI would, decades later, have dire consequences. As we now prepare to implement a profoundly disruptive technology that carries with it the potential to harm humans, it will be the responsibility of radiologists—along with the creators of AI solutions deployed within the radiology field—to avoid such a grave mistake. We must address possible ramifications beforehand, so the evolution of machine learning will strengthen our work—and not hurt those who depend upon us. MM

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REFERENCES: