3 Ways Artificial Intelligence Will Change Healthcare
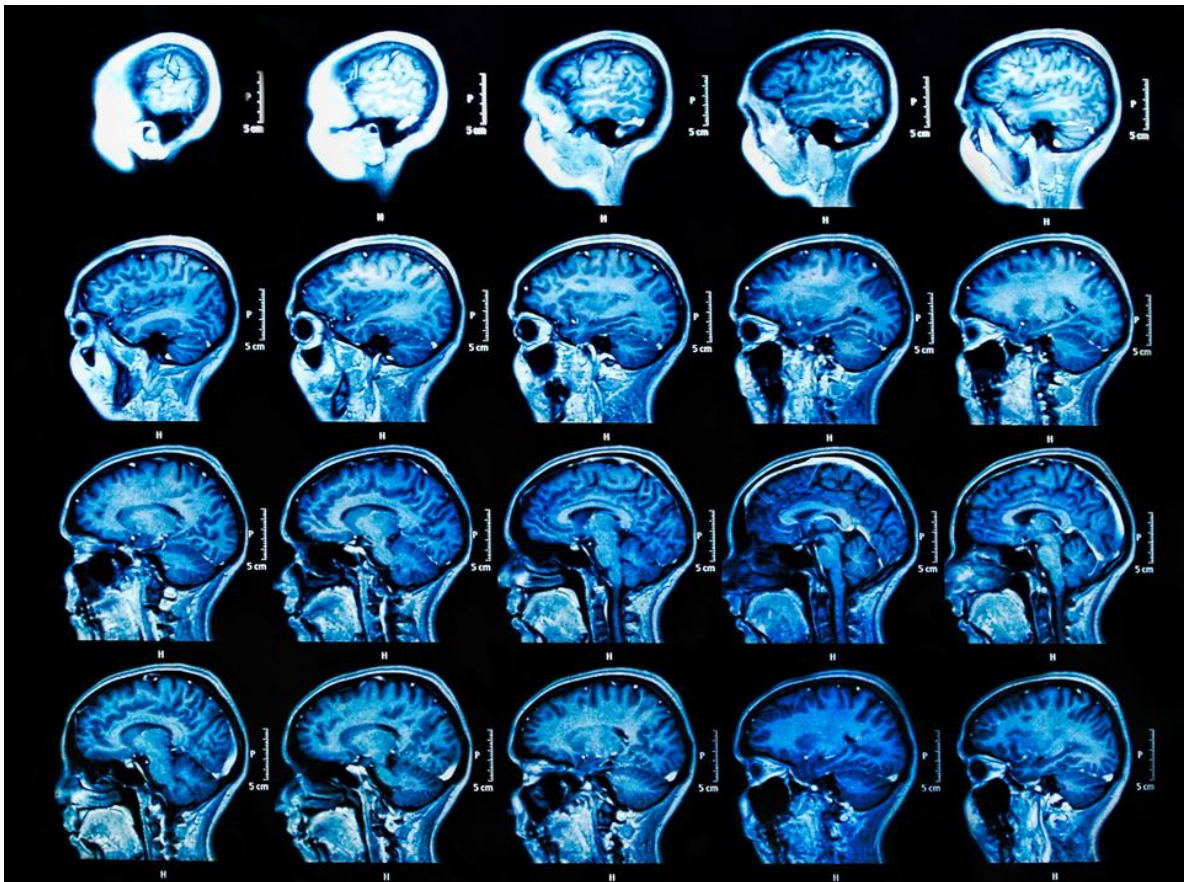
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AI

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MRI scan of the human brain   GETTY

It's no secret that healthcare costs have risen faster than inflation for decades. Some experts estimate that healthcare will account for over 20% of the US GDP by 2025. Meanwhile, doctors are working harder than ever before to treat patients as the U.S. physician shortage continues to grow. Many medical professionals have their schedules packed so tightly that much of the human element which motivated their pursuit of medicine in the first place is reduced.

In healthcare, artificial intelligence (AI) can seem intimidating. At the birthday party of a radiologist friend, she gently expressed how she felt her job would be threatened by AI in the coming decade. Yet, for most of the medical profession, AI will be an accelerant and enabler, not a threat. It would be good business for AI companies as well to help, rather than attempt to replace, medical professionals.

In a previous article, I expressed three ways in which I consistently see AI adding value: speed, cost and accuracy. In healthcare, it's no different. Here are three examples of how AI will change healthcare.

Faster

There are few sectors in which speed is more important than healthcare. In the case of the Viz.ai stroke detection platform, every minute of reduced time-to-treatment equates to saving 1.9 million patient brain cells. Often, the deep learning algorithms in Viz's platform save several minutes and in some cases they can save hours "of brain." In a recent study Viz.ai led to a significant reduction in patient disability. On average, patients went from being bedridden, needing 24/7 nursing care, to walking out of the hospital without assistance.

The artificial intelligence powered Viz.ai synchronized stroke care system in action.   VIZ.AI

Less Expensive

As healthcare costs continue to swell, cost savings are another major driver. For example, Athelas utilizes machine learning and computer vision to identify morphology and rapidly characterize cell types from a tiny finger prick of blood. Athelas CEO Tanay Tandon explains, "clinicians and health plans are able to save thousands of dollars annually per-patient by reducing hospitalizations, detecting adverse events earlier from frequent Athelas tests, and by keeping patients safely compliant on necessary therapeutics." This technology is used by thousands of patients around the country every day, including those on aggressive anti-cancer chemotherapy, on immunosuppressive anti-psychotics, and on inflammatory drugs. More than saving money, Athelas enables chemotherapy patients to get important results from the comfort of their homes, reducing the strain and risk (especially during this pandemic) of hospital visits.

Suki is a clinical digital assistant that uses natural language processing to type up notes that doctors or scribes would otherwise have to type. No doctor went into medicine to type up notes, and tools like Suki enable doctors to focus on the patient, rather than the notes. Suki CEO Punit Soni explained that, "we help reduce documentation time by an average of 76% and we recently launched an updated voice platform called Suki Speech Service that features a new intent extractor that has been benchmarked at 99.5% accuracy, which is among the highest of all digital assistants regardless of sector." Since Suki is powered by software, not human scribes, it's able to offer a more cost-effective solution that also improves revenue and patient outcomes.

More Accurate

Accuracy matters, especially for tasks that are tedious or boring to humans. 2020 started off strong with the announcement that Google AI could outperform doctors for certain types of breast cancer detection (remember when 2020 looked so promising?). Health Catalyst CEO Dan Burton explains that "whether at the level of an individual patient/person encounter or at the most senior levels of healthcare leadership, AI improves decision accuracy by separating signal from noise and keeping us focused on the future. For example, it can help us more accurately answer questions such as, 'is this recent uptick in COVID-19 positive tests a signal that we need to postpone non-emergency procedures?'" More accurate modeling can lead to better informed decisions in the healthcare industry. For example, as non-emergency care rebounds, providers need alerts for when their own Covid-19 positive tests/admissions are rising.

Daily Case estimations by Health Catalyst   HEALTH CATALYST
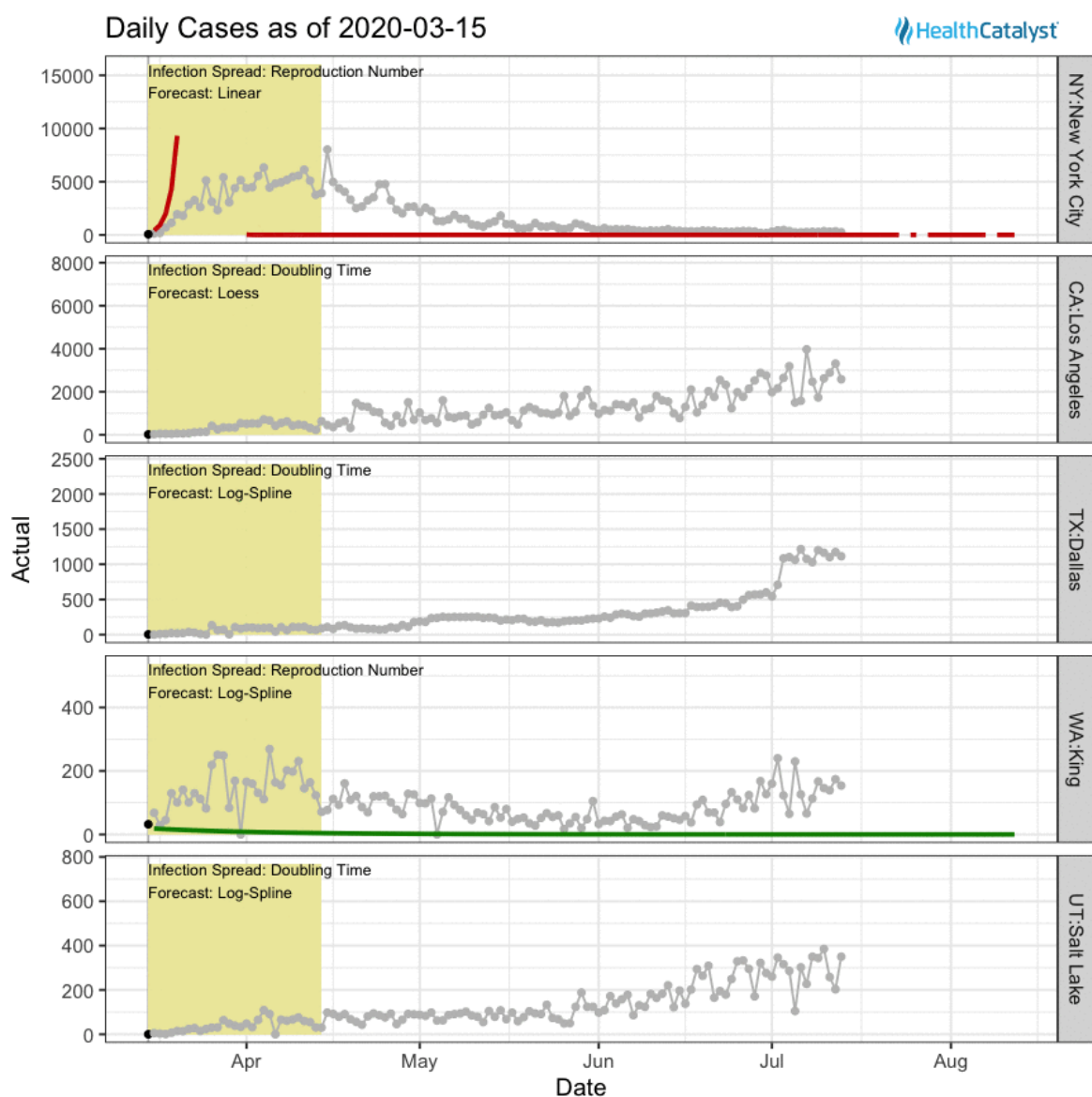
Building Prosperous Healthcare Artificial Intelligence Companies Requires Alignment

The interaction of speed, cost and accuracy can do amazing things for patients. However, the promise of improved speed, cost, or accuracy alone is often insufficient to meaningfully impact patient care. Anthony Bertrand, MD, MBA explains, "there are many companies trying to sell software that improves the diagnostic accuracy of a single test by x%, especially in fields involving visual diagnosis or imaging like pathology or radiology, only to be received by skepticism or dismissal. Products must be developed with a clear understanding of clinical workflows. In order to overcome inertia and risks of change, careful consideration should also be given to the economic incentives of doctors and the organizations that employ them."

Fortunately, increasing cost pressures and rewards, the publication of health outcomes data, the emergence of payment methods like bundled payments and the availability of EMR data for analysis could help accelerate the benefits of AI in healthcare. The key is aligning great technology with the realities of the healthcare industry. As Viz.ai CEO Chris Mansi, MD, MBA puts it, "just as many companies understand now that an algorithm is not a product, at Viz.ai we understand that to build a successful business in this space you need to eschew technological determinism and really challenge your team to lean into the complexity of how healthcare is delivered and paid for; that's how you actually get your products into the hands of clinicians who want to do the best they can for their patients." Ultimately, that is why it is exceptionally important to prove a business ROI in addition to clinical improvements. When businesses are able to harness AI to improve patient outcomes while aligning the organizational incentives of hospitals, true progress is made.

Disclaimer: The author, Konstantine Buhler, is a Partner at Sequoia Capital, which is invested in Athelas . Konstantine advises Viz.ai and is a shareholder of Alphabet. All three companies are used as examples of ways in which AI will change healthcare.

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Konstantine is a Partner at Sequoia Capital, where he focuses on seed and early-stage investments. He supports a number of portfolio companies, including AppAnnie,... **Read More**

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