Living in an AI World

By Heather Bremner Claverie

FOR MANY, the words artificial intelligence (AI) may conjure up images of a rogue world-eviscerating robot or HAL, the murderous computer from "2001: A Space Odyssey." But, the reality is much less sinister. AI isn't just about asking Google to turn on the lights; it has turned the medical world upside down — in a good way.

What Is AI?

The introduction of AI into healthcare has revolutionized the industry. Defined as "a device or product that can imitate intelligent behavior or mimics human learning and reasoning" by the U.S. Food and Drug Administration (FDA), these AI-enabled computers, instruments and networks diagnose and detect disease, assist with surgery and use specialized algorithms to assess and process patient samples.

One sector of AI that is rapidly growing is so-called machine learning, according to FDA. This smart technology can develop a procedure without specific programming by using automated data or adaptive algorithms. The machines can then continue to adapt as they essentially learn more. It does sound quite futuristic and maybe a little closer to that rogue robot scenario, but this technology is a lifesaver. Some examples include an imaging system that uses algorithms to detect skin cancer in patients or an electrocardiogram device that assesses the probability of a patient going into cardiac arrest.

Automating Healthcare

It wasn't long ago that repetitive stress injuries were just a normal byproduct of life in a laboratory. Repetitive tasks such as pipetting can cause a host of disorders affecting nerves, tendons and muscles. In addition, since lab technicians usually sit or stand in awkward positions while completing their work, they often suffer from back and neck pain. Due to these repetitive tasks, the most common condition among lab technicians is carpal tunnel syndrome, a nerve disorder in the wrists that causes pain, numbness and tingling in the hands and fingers.

Carpal tunnel syndrome is not only painful, it's costly. As the most expensive musculoskeletal disorder in existence, employers pay more than $28,000 per employee in carpal tunnel syndrome-related costs, according to the Occupational Safety and Health Administration. In addition to the costs, employers suffer loss of productivity and indirect costs involved with hiring and training new employees.

Enter automation. Mechanizing or automating mundane tasks in the healthcare industry is helping to lessen these workplace injuries. Many labs, hospitals and physicians are turning to AI to lower costs, decrease turnaround time and lessen the likelihood of human error. In addition, increased workloads, labor shortages and the impending retirement boom of medical technologists is compelling labs to look to AI to process an influx of lab samples.

A Shifting Landscape

AI in the healthcare industry has evolved drastically in the past decade. With the sudden influx of digital technology, FDA started regulating these devices under the Digital Health Technology program. Any software "intended for one or more medical uses that may run on different operating systems or in virtual environments" falls under the regulation's umbrella.

And, many of the fears associated with AI have dissolved as patients, physicians and technicians have witnessed its benefits. In the lab, automation frees up technicians, allowing them to focus on more complex work instead of repetitive tasks. In the workplace, smart technology helps physicians anticipate patient needs, spend more time with patients and less time processing paperwork, and prioritize patient care. Essentially, they can all put their brains to better use.

But, don't worry: AI can't replace the brain. AI is an asset to human intelligence and has the potential to continue to drastically improve patient care on all levels, bringing more efficient, higher-quality and accessible healthcare to all. ◢

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Forecast the Future

It's not a crystal ball, but Medial EarlySign's algorithms can help foretell the future. Its three founders started the company nearly a decade ago with the idea of using AI technology to detect early warning signals and health risks. Today, those algorithms can predict the likelihood of a patient developing an illness within 12 months or less. Armed with this information, physicians can intervene earlier and potentially delay or prevent an illness from progressing. **earlysign.com**

Detect Trauma Quickly

When a woman was hit by a car and the surgery went well but she still died, Chris Mansi was left wondering why. The neurosurgeon discovered there was a four-hour delay transporting the woman from the accident to the emergency room. That lapse in treatment meant they didn't see the medical scan showing a large blood clot in her brain for hours. Avoiding these scenarios is what led Mansi to help set up Viz.ai. The San Francisco start-up's main purpose is to use AI to immediately analyze brain scans and decipher which patients need urgent attention. **svin.viz.ai**

Shopping Guide to Artificial Intelligence

Ask Alexa

Smart home-dwelling devices can do more than play a curated selection of dinner music. With Amazon Echo Dot's AI technology, help is just a voice command away. In addition to calling anyone hands-free, Alexa, the device's moniker, can lock doors, track fitness, turn lights on and off, adjust the thermostat and more. The device can be paired with others to add even more smart technology to a home. **www.amazon.com**

Dial a Diagnosis

Automating the patient experience is the future of health-care. Heading to the doctor's office for a weird skin reaction or a lingering cough may soon be relegated to the past thanks to MTBC's smart software that allows practitioners to practice and deliver patient care anywhere at any time with its intuitive iEHR. Scheduling appointments and prescribing medications can already be accomplished with the click of a button. **www.mtbc.com**

Grow Old Gracefully

The number of individuals 60 years and older is projected to double by 2050. With more older Americans choosing to live independently, that means AI-enabled devices are bound to become even more valuable. TruSense's innovative technology helps give individuals and their family members more peace of mind. Kits are customized depending on health concerns and can include products ranging from diabetes monitoring to GPS technology, motion sensors and respiratory health monitors. TruSense products are medical-grade and HIPAA-compliant. **mytrusense.com**

Robot as Assistant

Scalpel. Scissors. Robot? Robotic-assisted surgery isn't just the future of surgery, it's happening now. With a motto of "we believe in healing through innovation," Mazor Robotics has successfully brought AI into the operating room. The Orlando-based company develops AI-assisted robotic techniques that help reduce surgical complications. The smart technology improves spine and brain surgery with its state-of-the-art procedures. **www.mazorrobotics.com/en-us**