

Artificial Intelligence – what it is and why it matters

BY SHANE STOREY

No, the machines haven't taken over, well at least not yet. Although, they are permeating their way into our lives, affecting how we live, work and entertain ourselves.

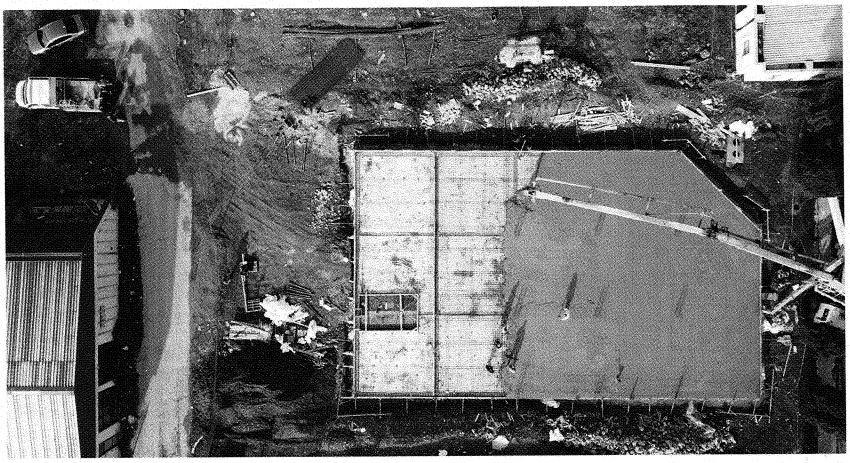
There are many applications of artificial intelligence in use today, from voice-powered personal assistants like Apple's Siri, Microsoft's Cortana and Amazon's Alexa, and Hanson's robot Sophia with her natural language and human-like facial expressions, to Moley's robotic kitchen chef with its ultimate capacity to cook 2,000 Michelin quality meals through to fundamental technologies such as behavioral algorithms, suggestive searches and autonomously-powered self-driving vehicles.

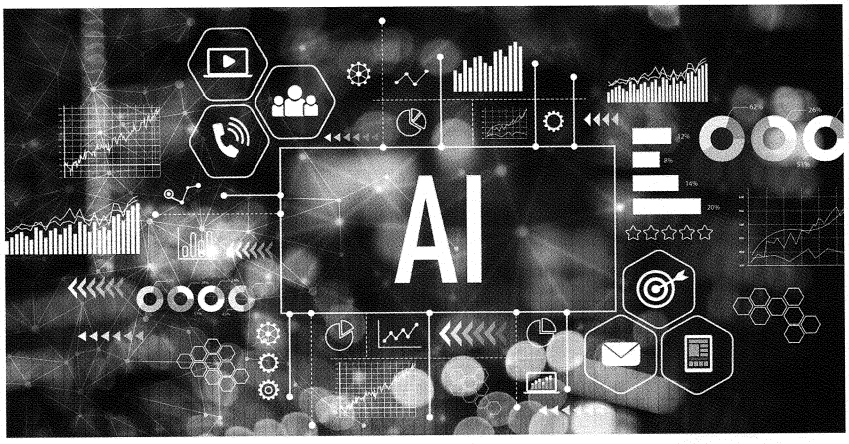
Over the next five years we are about to witness the world in which we live disrupted by improvements in Artificial Intelligence (AI) and machine learning. Children today are growing up with AI assistants in their homes almost to the point considered an extension of co-parenting. As voice and facial recognition continue to evolve, machine learning algorithms are getting smarter. More and more industries are being influenced by AI, and our society as we know it is transforming.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

AI refers to when a machine mimics human cognitive functions, like problem-solving, pattern recognition, and learning. Machine learning is a subset of AI and is a field of artificial intelligence that uses statistical techniques to give computer systems the ability to "learn" from data, without being programmed. A machine becomes better at understanding and providing insights as it's exposed to more data.

From smart phones to chatbots, AI is already present in our digital lives. The momentum behind AI is building, due in part to the massive amounts of data that computers can gather about our likes/dislikes,





our purchases and our movements. Specialists in AI research use all that data to train machines how to learn and predict what we want—or detest.

THE AMAZON EFFECT

Amazon's new futuristic, cashless, cashier-less stores (eight of which are already operating in the US) allow customers to grab items off shelves which automatically get charged to their credit cards upon leaving the store, thanks to multi-sensors and hundreds of state of the art cameras, bringing in about 50 percent more revenue than comparative stores. As many as 3,000 stores are planned by 2021. This technology will be the future of shopping and will lead to changes in how we shop, pay and, of course, changing jobs as we know them.

SO, WHAT'S IN STORE FOR THE FUTURE?

Entertainment - Move over, Netflix. In the future, you could sit on the couch and order up a custom movie featuring virtual actors of your choice. Film studios may have a future without flops as sophisticated predictive programmes analyse a film script's storyline and forecast its box office potential.

Medicine - Medicine could be tailored to your exact genome. AI algorithms will enable doctors to better analyse data and customize their health care to the genes, environment and lifestyle of each patient. From diagnosing brain tumors to deciding which cancer treatment will work best for an individual, AI will drive the personalized medicine revolution.

Cyber security - Companies are struggling to stay one step ahead of hackers. Self-learning and automation capabilities enabled by AI will protect data more systematically and affordably, keeping people safer from terrorism or even smaller-scale identity theft. AI-based tools look for patterns associated with malicious computer viruses and programmes before they can steal massive amounts of information or cause havoc.

Personal tasks - AI assistants will help elderly stay independent and live in their own homes longer, monitoring movement in the home, mowing lawns, keeping windows washed and even helping with bathing and hygiene. Many other jobs that are repetitive and physical are perfect for AI-based tools. But the AI-assisted work may be even more critical in dangerous fields like mining, firefighting, clearing land mines and handling radioactive materials.

Transport - AI may have the biggest impact in the near future in self-driving cars. AI drivers never look down at the radio, eat hot food or argue with the kids in the back seat. Autonomous cars are already here, but expect them to be universal by 2030. Driverless trains already dominate the rails in European cities, and Boeing is currently building a pilotless passenger jetliner.

FUTURE POTENTIAL FOR AI IN BUILDING AND CONSTRUCTION

Building and construction sites are generally considered one of the more hazardous workplaces due to the presence of heavy equipment and uneven terrain.

AI can go a long way in addressing the safety risks and inefficiencies. In the near future, with data-gathering cameras on heavy equipment and drone-based terrain visualization for the jobsite, it's anticipated that AI will enable operators to make informed decisions based on higher awareness levels about their surroundings and also help monitor construction equipment towards improving efficiency.

The major applications for AI in the construction sector are around machine learning for pattern recognition and machine vision for image recognition. Enhancing safety of human workers in construction sites using AI is starting to gain prominence among most large construction firms.

AI is a game-changing technology and one that is here to stay. What lies ahead in AI undoubtedly will have great value to business, but the way in which it stands to improve the everyday lives of humans is where we will see huge strides in the very near future, just like electricity changed peoples' lives 120 years ago.