

# Bringing Artificial Intelligence to Life

## Myriad of uses already exist

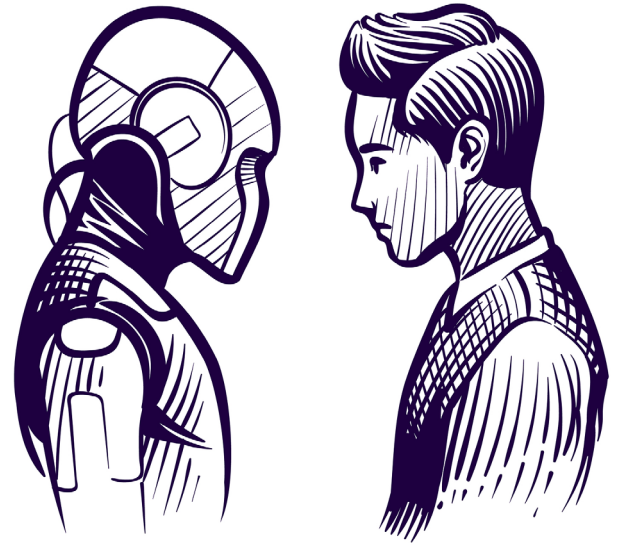
by Sue C. Quimby, CPCU, AU, CIC, CPIW, DAE

In 1968, Stanley Kubrick's futuristic drama, 2001: A Space Odyssey, introduced movie-goers to artificial intelligence (AI) in the form of the HAL 9000 computer. The use of artificial intelligence as seen in the movie was eerily prescient. Although the term "artificial intelligence" was first used in 1956 by Dartmouth professor John McCarthy, the science has only recently exploded in usage and popularity.

Artificial intelligence, or machine learning, can handle tasks that are too complicated or would be too time consuming for humans. From facial recognition on phones to personal assistants—the possibilities are endless. While the use of AI is still in its early stages, the number of applications are certainly growing. A 2017 study by global management consultant PwC estimated that, by 2030, artificial intelligence could add \$7 trillion to China's economy and \$3 trillion to North America's worth.

There are generally five stages that make up artificial intelligence: discover, predict, justify, act, and learn. Discovery involves the ability of an intelligent system to learn without direct human intervention. Once data is understood through discovery, relevant features are easily identified and combined into a mathematical algorithm that forecasts likelihood of a future occurrence. Justification is the ability to explain assertions of the model for the purpose of identifying potential failure points. It is what makes the prediction intelligent. Act is, of course, putting the prediction into operation. Learning, defined as detecting new data and reacting to it to improve the predictive ability of the model, is what AI does best.

AI is especially well-suited to certain tasks such as recognizing patterns or anomalies or making predictions based on past actions. Anomalies could be unusual credit card activity, sensor readouts indicating engine problems in an automobile, or temperature fluctuations in a restaurant freezer. AI can also be used to make



predictions, such as future stock prices and which movies a person will like.

Machines using AI can operate 24/7 with no lunch breaks or holidays, in conditions under which humans would not be able to function. True AI structure has the ability to learn from past actions through the use of neural networks, a series of algorithms that mimic the activity and interconnected workings of the human brain.

Drones equipped with AI technology are another example of the multiple ways AI is being used. Drones can perform tasks more quickly and safely than otherwise possible, which is especially helpful in disasters where drones can drop supplies to victims who are otherwise cut off from assistance. Construction companies use drones to map out building sites and perform roof inspections.

Flood prevention is being attempted through the use of high-resolution aerial photographs that show the location of objects in relation to watersheds. The goal is to alert communities to areas where further development can harm the watershed's ability to manage water runoff. Additional AI programs map forests and oceans to provide alerts of potential deforestation or declining health of coral reefs, as recently reported in article authored by Bill Gourgey that appeared in Wired.

Commercial airlines make extensive use of AI, as the vast majority of flights are executed under autopilot. In fact,



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airlines have used a form of autopilot since 1914! Other well known, but perhaps not so obvious, uses of artificial intelligence are the spam filter in our email systems and cruise control in an automobile. In the healthcare field, AI is already being used to make diagnoses based on input of symptoms. In education, personalized education programs are becoming available to offer students the chance to learn using methods that more closely represent their own unique learning process.

The term “user experience,” or UX, defines all aspects of the end-user’s interaction with an organization, encompassing services, products, accessibility, and people. AI can dramatically improve UX through personalization, efficiencies, and availability. Amazon and Facebook use AI to customize the shopper’s/user’s experience by showing products and newsfeed items that data predicts will be attractive to them. Uber applies machine learning to estimate arrival time for rides or food delivery, as well as to predict peak demand periods for ride requests. Personal assistants such as Alexa and Siri can turn on lights, create shopping lists, and answer questions.

The switch to AI driven businesses may mean a fundamental change in how businesses operate. AI will expand from limited-use applications to a key component in all aspects of how the business is run. A recent book entitled *The AI Advantage* by Deloitte Analytics senior adviser Thomas H. Davenport outlines three stages of implementation of AI. Many companies are in the initial “assisted intelligence” stage, where companies make use of cloud computing and large banks of data. The second stage, “augmented intelligence” pairs machine learning with more traditional information technology

to maximize analytical capabilities. In the final stage, “autonomous intelligence,” machine learning allows machines to take action based upon information.

The insurance industry stands to make extensive use of artificial intelligence. AI can significantly reduce time required for policy issuance and claims handling. Online insurer Lemonade touts their AI bot “Maya.” They state that they offer “immediate” coverage and claims payment timeframes that are notably shorter than those of traditional insurers.

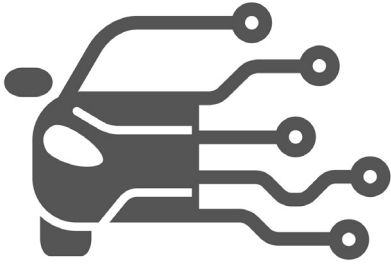
In claims handling, AI can verify policy details, document damage, apply a fraud detection algorithm, and process payment. Communication with the claimant can be automated as well.

Insurers look to automation to increase efficiency and reduce costs. AI can crunch numbers, and determine connections and overlap, though it still cannot replace human judgement. However, interactive bots can speed the process by answering questions through text or voice response.

Usage-based insurance is made possible by installation of an AI-based device in the vehicle. Such equipment can also be used as an underwriting tool, to track miles driven and other driving habits material to insurance experience, such as hard braking and excessive speed.

Another area where AI is very useful is fraud detection. It is estimated that fraud costs the property and casualty insurance industry over \$40 billion per year, or up to 20 percent of overall claims costs. Expense to the health insurance industry may be even greater. AI aids in fraud





detection by scouring social media, helping to determine if an “injured” claimant is participating in activities that would not be possible if he or she were truly incapacitated. AI can also perform a systematic search to determine if a claimant is using online services (Craigslist or eBay for example) to sell items they previously reported as stolen.

In the marketing arena, insurers take advantage of AI to develop products that fit the specific needs of the potential customer, as well as making purchases faster and easier. Chatbots offer consumers 24/7 access to customer service for claims reporting, premium payment, and answers to questions.

Insurance needs and products are becoming increasingly complex. Yet human intervention and decision-making is still important in the insurance purchasing process. A recent survey by NTT Data Consulting indicated that while 40 percent of consumers prefer to learn about insurance online or via a mobile app, 63 percent of respondents prefer to speak to a human when making insurance purchase decisions.

AI has been touted as a means to replace humans. It may be more correct to state that AI will improve how humans operate. AI can recognize faces or objects, spoken words, or speech patterns, but it is not perfect. Machines can certainly perform routine, simple tasks, like crunching numbers and analyzing data, faster than hominids can. However, AI “recognizes objects, but can’t explain what it sees. It can’t read a textbook and understand the questions in the back of the book,” according to Oren Etziona, who oversees the Allen Institute for Artificial Intelligence.

It is often said that the computer is only as good as the programming and information that is entered into it. Artificial intelligence and machine learning systems are no different. Unlike Hal, in 2001: A Space Odyssey, machines are not yet taking over the world. However, in today’s world of 24/7 customer service and instant access to everything, the possibilities and practical applications of AI are endless. As use of AI expands to all areas of society, insurers must adapt to implications of its use, not only in their own operations, but those of their clients.

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