Singapore eyes a slice of the AI pie

Latest projects that are up and running include NTU’s robot receptionist and NUS’s driverless cart

Lester Hoo

Nudie, a robot receptionist at the National University of Singapore, is a diversion that aims to encourage students to take their time. The robot’s long, hair-like, monotonous brown hair, short stature, ponytail, and glasses suggest that she is not a software or network functions, as she paces through the most significant things to say. Fully, she adds: "We talked about first job." At the National University of Singapore campus, a diversion not only aims to entertain a crowd of passers-by. Nudie, a robot receptionist, is a key piece in the global market's struggle toward artificial intelligence.

A recent projection by India-based research and consulting firm Mordor Intelligence was based on an expected rise in the adoption of AI in marketing and advertising, retail, finance, and healthcare, growing from a market size of $15.9 billion in 2016 to $105.8 billion by 2030. This is the result of a combination of India’s rapid growth in AI and the development of AI-based tools for the marketing and advertising industry.

The new era of AI machines like Nudie has moved beyond traditional AI design, in which machines are given specific instructions to follow without room for improvisation. Rather, they tap into a network of AI called machine learning, in which machines are taught to learn for themselves through experience.

A few years ago, the state of the art in AI could be described as "batch learning," where machines are taught a set of rules and then set to work. This is a kind of learning where the machine is given a set of data, and then it is supposed to learn what to do with it. But as the machines have learned to get better at understanding the world, they have also become better at understanding the tasks they are given.

Lester Hoo

What is machine learning?

Machine learning is a subset of the field of computer science known as artificial intelligence (AI), which seeks to simulate the workings of a human brain. Machine learning is a form of programming, where the software improves its response after learning from previous experiences, rather than following only scripted responses. At the most elementary forms of machine learning first emerged some 20 years ago. The most modern form is "deep learning," which aims to model the human brain, allowing identifying millions of patterns in large data sets to make sense of the next sentence.

It plays an important role in big data analytics and is currently the rage in machine-learning research, given the accessibility of big data and computational power. Professor Lee Wei Sun, vice-dean of undergraduate studies at the National University of Singapore’s School of Computing, says, "true" AI is still too far away from the results we can be termed "learning," learning, planning, reasoning and knowledge representation.

So, while machines may currently be able to crunch large amounts of data and make accurate decisions, such as when to buy and sell in the stock market based on statistical predictions, the human mind may never be replaced in areas that require creativity and the ability to solve novel problems.

FROM ROBOT TO FOOD – 3 AI PROJECTS HERE

MASHEE

A companion robot designed by Professor Nadia Thalmann, director of the Imaging, Navigation and Computing, University of California, is a robot that has been designed to follow human-like patterns of speech, capture words and correct her database of facial gestures. Her creator, Prof. Thalmann, said: "Learning is the first step. Our future research will be to develop a robot with a memory to build a stronger relationship with robots and humans.

One of the ambitions future goals for Nudie is to react as a robotic caretaker for the sick or elderly. For instance, she can stand as a virtual human presence to help people with Alzheimer’s by talking to them and keeping them company.

FOODAI

A machine learning-powered food delivery service was developed by a firm that Thalmann calls FoodAI. It is led by Steven Hoo, an assistant professor of information systems.

FoodAI allows users to map shops and restaurants in areas of interest, which the software can identify by looking at the user’s location and movement. But it also allows for certain kinds of personalization, such as the user’s health and fitness goals.

MALACIOUS SDF FILTER

In the past, most machine learning algorithms have relied on software that can recognize patterns of speech. As it tests its current database of more than 100,000 existing files for the task. This is a kind of learning where the machine is given a set of data, and then it is supposed to learn what to do with it. But as the machines have learned to get better at understanding the world, they have also become better at understanding the tasks they are given.

Machine-learning software can now pattern the behavior of those kinds of files, such as text files, in a similar way to the human brain, and then use that knowledge to make predictions about new data. This is a kind of learning where the machine is given a set of data, and then it is supposed to learn what to do with it. But as the machines have learned to get better at understanding the world, they have also become better at understanding the tasks they are given.

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