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Artificial intelligence / Machine learning

Instead of practicing, this AI mastered chess by reading about it

Machines that appreciate "brilliant" and "dumb" chess moves could learn to play the game—and do other things—more efficiently.

by **Will Knight**   July 31, 2019

A chess board.

UNSPLASH

practical tasks.

The chess algorithm, called SentiMATE, was developed by researchers Nicholas McCarthy, Isaac Kamlish and Isaac Bentata Chocron at University College London. It evaluates the quality of chess moves by analyzing the reaction of expert commentators.

The team analyzed the text of 2,700 chess game commentaries available online. They pruned out commentary that didn't relate to high-quality moves, and examples that were too ambiguous. Then they used a special type of recurrent neural network and word embeddings (a mathematical technique that connects words on the basis their meanings), trained on another state-of-the-art model for analyzing language.

AI has recently made significant progress in parsing language. For example, an algorithm developed by researchers at OpenAI, a research company in San Francisco, proved capable of generating whole news stories from a prompt of a few words.

"The next step in the advancement of natural language processing is to convert this learnt information into tangible actions to help solve real-world tasks," the researchers said in an email to MIT Technology Review. "We felt that learning strategy from text-based data could be a very important research avenue to explore."

SentiMATE surprised the researchers with its ability to work out some of the basic tenets of chess as well as several key strategies, such as forking (when two or more pieces are simultaneously threatened) and castling (when the king and castle both move to a more defensive position on the back of the board).

It was hardly an AI grandmaster: it failed to beat some conventional chess bots consistently. But the program demonstrates the promise of using language to help figure out how to play the game well, with less practice data and less computer power than conventional approaches require.

Chess has long been a benchmark of progress in machine intelligence, from Alan Turing's 1951 program for playing the game (written on paper) through Garry Kasparov's defeat at the hands of IBM's Deep Blue.

More recently, the Alphabet subsidiary DeepMind demonstrated a chess variant of AlphaGo, the program capable of teaching itself to play the ancient Chinese board game Go. This program, known as AlphaZero, was given the rules of the game and then honed its skill by playing against other versions of itself. Because it taught itself, AlphaZero developed some unusual and surprising strategies. But like Deep Blue, AlphaZero needed thousands of

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practical applications beyond chess. For instance, they might help machines analyze sports, predict financial activity, and make better recommendations. "There is an abundance of books, blogs and papers all waiting to be learnt from," the team points out. T

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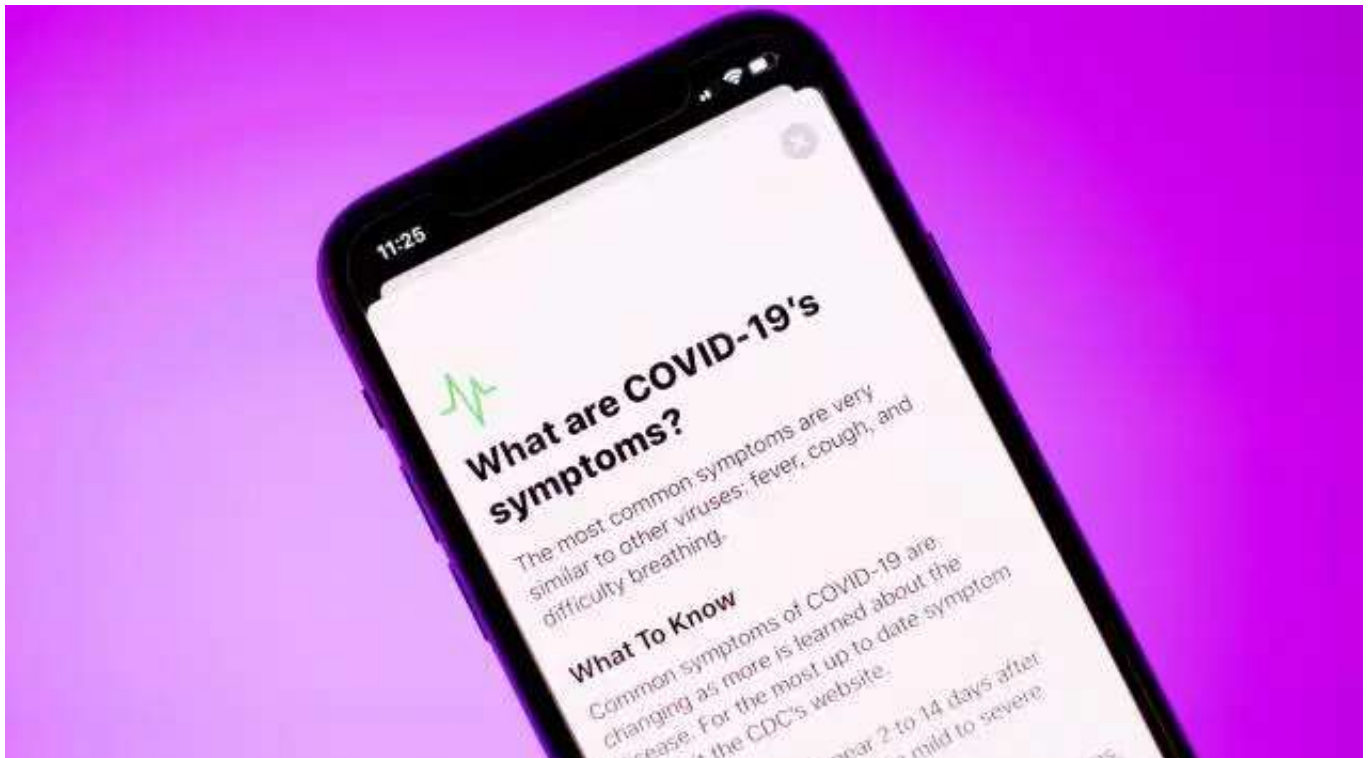
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