

World Go champion beaten by AI for second time

Google's AlphaGo Artificial Intelligence has beaten the world's Go champion for the second time, in a landmark achievement for software developers. The AI has already triumphed over Europe's Go champion in October of last year, but this is on a whole new level for artificial intelligence.

AlphaGo's victory echoes that of IBM's pioneering computer Deep Blue over world chess champion Garry Kasparov in 1997, an event similarly important for software developers, but there are a number of reasons why this is an even more amazing achievement than that. Go is a significantly more difficult game than chess. As an example, there are a total of 20 possible opening moves in a game of chess, whereas in Go there are 361.

Go has long been a game that software developers consider difficult, if nigh impossible to beat using algorithms alone. The game seems deceptively simple, with players taking turns to place white and black stones on a 19 by 19 board, surrounding the enemy's pieces with their own. Despite its apparent simplicity, there are more possible permutations than there are atoms in the universe, so simple tactics are clearly useless. However, AlphaGo does not use simple algorithms to win. It 'learns from its mistakes', and uses that knowledge to improve. Therefore, AlphaGo is significantly better than it was back in October when it beat Fan Hui, the European champion, five-nil.

Yesterday's game was already shocking, when an artificial intelligence beat a human at Go, a feat not expected for another decade at least. But today, the champion was beaten again. "Playing against a machine is very different from an actual human opponent," Lee Sedol told the BBC before the first game. "Normally, you can sense your opponent's breathing, their energy. And lots of times you make decisions which are dependent on the physical reactions of the person you're playing against. With a machine, you can't do that."

The artificial intelligence only needs one more win to be the victor. But AlphaGo seems set to face whatever challenges it may encounter, and whether or not it wins the next three matches, history has been made.

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