

AI researchers to see if they can push some boundaries with StarCraft II

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(Tech Xplore)—Google's artificial intelligence group DeepMind is teaming up with the makers of the StarCraft video game.

Scientists working on [artificial intelligence](#) systems will possibly thrive from this very challenging playground.

"For almost 20 years, the StarCraft game series has been widely recognized as the pinnacle of 1v1 [competitive](#) video games, and among the best PC games of all time," said Oriol Vinyals, research scientist, in the DeepMind blog.

The blog announced Friday that StarCraft II will be released as an AI research environment. DeepMind and Blizzard are the two parties behind this release.

Jane Wakefield, BBC, described the game:

"StarCraft II, made by developer Blizzard, is a real-time strategy game in which players control one of three warring factions - humans, the insect-like Zerg, or aliens known as the Protoss. Players' actions are governed by the in-game economy, and minerals and gas must be gathered in order to produce new buildings and units. Each player can only see parts of the map within range of their own units and must send units to scout unseen areas in order to gain information about their [opponents](#)."

The collab news was delivered at BlizzCon 2016 in Anaheim, California. Target users are AI and machine learning researchers around the world. It may be quite interesting to see how participants learn from the collaboration.

So who (or what) is actually playing StarCraft? AI reporter Dave Gershgorin in *Quartz* wrote about this: "Google DeepMind and Blizzard announced on Nov. 4 a tool that allows artificial [intelligence](#) to directly play StarCraft II. The tool, a kind of digital controller that lets AI act as a player, was built specifically for developers to let AI bots interact with the game's interface."

Steps taken: "We've worked closely with the StarCraft II team to develop an API that supports something similar to previous bots written with a

'scripted' interface, allowing programmatic control of individual units and access to the full game state (with some new options as well)," said Vinyals. An image-based interface outputs "a simplified low resolution RGB image data for map & minimap, and the option to break out features into separate 'layers,' like terrain heightfield, unit type, unit health etc."

He also said the DeepMind/Blizzard collaborative team is working to create "curriculum" scenarios. These present increasingly complex tasks: researchers of any level can "get an agent up and running, and benchmark different algorithms and advances."

No, it would not be the first time AI researchers are looking at games but this effort has its distinctive mark. Prof Yoshua Bengio, head of the Institute for Learning Algorithms at the University of Montreal, told the BBC: "It is a much more complex game than games previously [studied](#) by AI researchers, like the Atari games or even the game of Go."

StarCraft is a game that provides "a useful bridge to the messiness of the real-world," said Vinyals. He also said that "this is a real-time strategy game - both players are playing simultaneously, so every decision needs to be computed quickly and efficiently."

As the blog said, the environment allows the DeepMind team "to develop and test smarter, more flexible AI algorithms quickly and efficiently, and also providing instant feedback on how we're doing through [scores](#)."

The environment is to be supported directly by the team at Blizzard. The BBC said the game will be opened up to other AI researchers next year.

Will Knight in *MIT Technology Review* had further details of what to expect:

"Modifications to StarCraft II, the latest version of the game, will be released in the first quarter of next year, making it possible for AI researchers to build systems that can use experimentation, observation, and other cutting-edge learning techniques to improve their [play](#)."

Still, don't think about a chess-like media event surrounding this effort any time soon. Vinyals said, "While we're still a long way from being able to challenge a professional human player at the game of StarCraft II, we hope that the work we have done with Blizzard will serve as a useful testing platform for the wider AI research community."

More information: [deepmind.com/blog/deepmind-and ... esearch-environment/](https://deepmind.com/blog/deepmind-and-...-research-environment/)

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