# An aI Learned to Play Minecraft and it's actually Pretty Good

Chess Go, Chess, and now-Minecraft. Artificial intelligence models have added a brand new victory to their killing list.

- Off - English

Using a mix of unlabeled Minecraft videos as well as a tiny dataset of ones which were labeled by contractors intelligence company OpenAI was successful in training an artificial neural network to successfully play Minecraft. Hexnet This is a major important milestone for the technology, which had previously struggled to master the game's simple, but tense gameplay. Open AI engineers released their findings in an article and blog post this week.

The OpenAI model was able to do more than basic survival and crafting. It could perform many of the same complex tasks as a human Minecraft player. OpenAI posted a video showing its model swimming, hunting and cooking animals. It even learned the "pillar jumping" technique. Deepmind was also capable of training its MuZero AI to play Atari Games.

To beat traditional games like Chess and Go, previous AI models relied on reinforcement learning. Minecraft On the other hand is easy enough to be mastered by young children but poses an obstacle for AI systems because of its open-world and open-ended structure.

There are many videos on the internet that discuss Minecraft gameplay. However, these videos only tell a small portion of the story of how an AI learns how to play the game. OpenAI claims that the unlabeled video data does a good job of showing "what" but doesn't give precise key presses or mouse clicks that are required for an AI to comprehend "how" to play.

This "how" problem was solved by engineers who designed a semi-supervised imitation learning process they call "Video PreTraining," also called VPT. OpenAI basically collected a smaller set of data from contractors that contained Minecraft gameplay as well as key presses and other actions. OpenAI created another model that relies on videos of contractors to predict the next step in each step of the Minecraft film. The AI was able to comprehend large quantities of Minecraft videos once it had the basic. Instead of simply dumping a lot of data on their AIs, the engineers took the time to teach them the fundamentals of inputs.

"For many tasks our models show human-like performance and we are the first to report computer programs that create diamond tools, which could be completed by skilled humans in upwards of 20 minutes (24,000 environment actions) of gaming to complete," OpenAI worte in their research paper describing the findings.

According to ZDNet, the cost of all that training and assistance for contractors was around $160,000. The majority of that money according to ZDNet, went to paying out the contractors who collectively completed around 4,500 hours game play. The hourly rate for contractors was around $20.

There is footage of the AI chopping wood, managing its inventory, and scouring caves below.

It's difficult to believe that an AI that can mine a diamond in Minecraft at a rate of 1% per year is worth the annual wage of surgeons. But it's worth reviewing the past to see how far technology has come. Three years ago teams of technologists competed in the MineRL competition were tasked with one simple goal: create an AI that could successfully mine a diamond in Minecraft. There were 660 contestants who tried to meet this challenge and every last one of them failed. OpenAI's model is now able to create diamond tools.

OpenAI isn't only a tech company that relies on Minecraft to conduct its AI experiments. In the last month, at its Build conference, Microsoft revealed a new AI Minecraft "agent" that is part of the game. Users interacting with Microsoft Minecraft agents can type into commands that are automatically generated by the game's API software. Wired notes that this means that users can type phrases such as "come here" into the Minecraft bot and it will translate it into Minecraft code. The bot then proceeds to move forward. In addition to walking, Microsoft's Minecraft agent can also complete more complex tasks such as retrieving items out in the game world and then combining them to make something. And look, it will probably be able to do this better and quicker than this writer, who is several years removed from his last Minecraft session.