# PhD student creates AI machine that can write video games

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(Phys.org)—Micheal Cook, a PhD researcher in the Computational Creativity Group at Imperial College in Britain, along with colleagues, has released a video game that was written in part by an Artificial Intelligence (AI) "machine." The video game, called "A Puzzling Present" is the latest co-developed by an AI machine named Angelina.

Cook et al have been working on ways to program AI machines to write video games and Angelina is the result – a system made up of various code modules that allow for learning to take place. In the case of Angelina, the learning comes about by examining and borrowing code from existing video games and applying them in unique or novel ways to new games that are being developed. At the heart of the new games are properties known as mechanics – code that gives characters special characteristics, such as the ability to fly, bounce or jump when commanded to do so by the human player.

Cook writes on the group's blog that the way to get an AI machine like Angelina to understand its basic task is to start with a baseline. For Angelina, that meat offering a basic video game without any meat to it – a single character for example, that can be moved on screen, a wall that cannot be surmounted and an exit. Angelina is then told that the goal is to find a way to allow the character to get over the wall and then to the exit. "She" then studies code from other video games, looking at how a similar task might have been accomplished in another environment and then applies what she's learned to the new game. Code is then borrowed and used to allow the character to jump high enough to get over the wall and then to make its way to the exit. To create a full video game, this process is repeated over and over, eventually leading to various levels and roadblocks that provide for fun game playing.

One problem Cook says, is getting Angelina to understand the level of difficulty that she's building into games. To help her learn, the team has added a feature that asks for user feedback regarding difficulty level. That says, Cook, might be the real key to the design of a highly evolved AI game design system.

For those worried that human coders might lose their jobs to AI machines, Cook says that he doesn't see that happening; instead, he says, he envisions a world where programmers use AI machines as expert

assistants that help to come up with new ideas and mechanics – with the end result being better games for everyone.

**More information:** www.gamesbyangelina.org/
ccg.doc.ic.ac.uk/wiki/doku.php?id=michaelcook

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