

# Why 'True' AI In Video Games Is a Marketing Gimmick

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Call of Duty: Black Ops 3. Screenshot: Activision

**Don't expect to have a HAL 9000 moment with your Xbox any time soon.**

I recently picked up an Xbox One, my first console in six years, and my hopes were high for gaming in 2015. I happily shelled out for *Halo 5: Guardians*, and readied myself for what was promised to be an utterly engrossing experience.

Well, it wasn't long before I was shouting, "Just kill something, you idiots!" at my fellow Spartan squadmates in *Halo 5*. Instead of helpfully annihilating enemies, they mostly just ran around yelling things and occasionally revived me. I thought that dumb NPCs would be a thing of the past by now, but clearly, video game AI still has a long way to go. So why then, I wondered, do gaming companies keep talking about "true" AI, when the computer-controlled characters they create are still so infuriatingly stupid?

The latest promise of this kind came from a panel at the Playstation Experience 2015 conference over the weekend. Titled, "Call of Duty: Black Ops 3: Unlocking the Potential of AI," the panel consisted of four Treyarch developers pumping up the abilities of the NPCs in the next installment of *CoD*. During the conversation, Craig Houston, one of Treyarch's head writers, said, "We really needed the AI to be more like 'true' AI, and not just hand-scripted." None of the Treyarch AI developers he shared the stage with objected to the phrase, "true AI."

It's unclear what kind of algorithm Houston was talking about here—it's simply not discussed in any sort of detail during the panel discussion—but the next *Call of Duty* game, or any game any time soon, is not going to have anything approaching "true AI" in it. This is because the kind of AI the gaming industry invests in is completely different from what academic computer scientists actually work on.

"The industry says, 'We have this game that we need AI for,' and academic AI is more general," Dave Churchill, a computer science PhD student at the University of Alberta's Games Group and game AI programmer, told me over the phone. "It's like, here's a general problem—we'll try and find a solution for it, and in order to test it, we might apply it to a game."

The difference is that while game AI serves a very narrow purpose (to make a specific game, with specific mechanics, fun for the player) academic AI work seeks to solve more general problems; for example, how an AI can generate novel vehicle designs. This kind of ability might be useful in a game, but not *just* in a game. Churchill himself tests his AI in the popular strategy game *Starcraft*, because it presents unique and difficult problems for his AI to overcome. But he's not designing AI that will work exclusively within the narrow parameters of *Starcraft*.

"The difference is that in video game AI, you're looking for a tool to solve *your* problem, but in academic AI you're trying to advance science," Churchill said.

**"How can one company with five people, working for a year, achieve what we in academia been trying to do for 50 years, with thousands and thousands of people?"**

The point of video game AI is to help the player have fun and move in-game units around, not necessarily to push the boundaries of machine decision-making. The characters have got to look good, move convincingly, and present a challenge as consistently as possible; things that, ironically, an AI cooked up in a real research lab would probably have a bit of trouble doing right now. So, some smoke and mirrors are required.

Tightly scripted "if, then" algorithms and shortcuts based on rules (when the player ducks behind cover, always throw a grenade) are frequently used in games. Some game AIs use more advanced decision-making techniques, ranging from relatively simple behaviour trees, to taking cues from the academic AI world. The end goal is always appearance, however, and not ingenuity. As an Intel primer on the kinds of AI used in games puts it, the whole endeavour is more "artificial" than "intelligent."

In academic AI research—the kind of work that really inches us toward what we might one day call "true AI"—shortcuts in algorithm-writing are also often taken, but the purpose of the work is completely different: nobody really cares if it looks good or even works properly all of the time, as long as it pushes us a little further down the path of what machines can do all on their own. In this field, supervised or unsupervised deep learning techniques reign supreme, and researchers are still trying to overcome problems like how to "teach" an AI to do two tasks without forgetting the first one.

Sometimes, advanced AI just doesn't make sense for games, either, Churchill said. "One of the big failures that keeps more modern AI techniques out of video games is that the industry doesn't want to spend so much computation on AI," Churchill explained. "If you talk to modern game designers, they're pushing graphics so far all the time, that maybe one percent of their computation budget is given to AI."

After all, when everyone from your swaggy little brother to your weird, older weed dealer goes out to buy the latest shoot-em-up, do you really think they'll care about what's under

the hood? As long as the explosions look dope, and the enemies move with fierce quickness, it doesn't really matter to most players how simple or complex the algorithm behind it all is.

The *Call of Duty* panel is hardly the first time "true" AI has been used to stoke interest in a product. Polygon recently ran a feature titled "[True Artificial Intelligence Coming to 'Space Engineers' Thanks to New Research Company](#)" based on the claims of a developer. The story doesn't suggest "true artificial intelligence" is *just* for games, though the author does say that they'll be putting it in the 2013 indie game, and repeats promises of "general artificial intelligence" in the game. Forget that tech giants like [Facebook](#), [Google](#), and research institutions with massively expensive supercomputing centers are still just scratching the surface of what limited AI is capable of.

You don't have to be a computer science whiz to see where this logic fails.

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I'm really not sure where the language of "true" AI came from in the modern gaming industry, or why it's being increasingly employed. Perhaps there's just something in the air these days, due to luminaries like [Elon Musk](#) and [Stephen Hawking](#) talking about the future of (possibly evil) machines. Perhaps "AI" is just a buzzword that everyone is familiar with after decades of use in the industry, and so gaming companies exploit it to communicate better with their audience. Maybe it's nothing more than a [cheap marketing ploy](#). This is Churchill's preferred explanation.

"How can one company with five people, working for a year, achieve what we in academia been trying to do for 50 years, with thousands and thousands of people?" Churchill said. "There's marketing hype with anything."

Whatever the reason, it's pretty dumb, just like those gun-toting in-game characters that won't get the hell out of my way when I'm trying to enter a room and shoot up a bunch of digital baddies.