

The 2K BotPrize : Home

Can computers play like people?

Computers are superbly fast and accurate at playing games, but can the fun to play - to play like you and me? People like to play against opponent opponents with personality, who can surprise, who sometimes make mis the same mistakes over and over. The BotPrize competition challenges programmers/researchers/hobbyists to create a bot for UT2004 (a first-p opponents into thinking it is another human player. The competition has since 2008, with up to \$7000 prize money. It was created and is organis [Philip Hingston](#), of Edith Cowan University, in Perth, Western Australia.

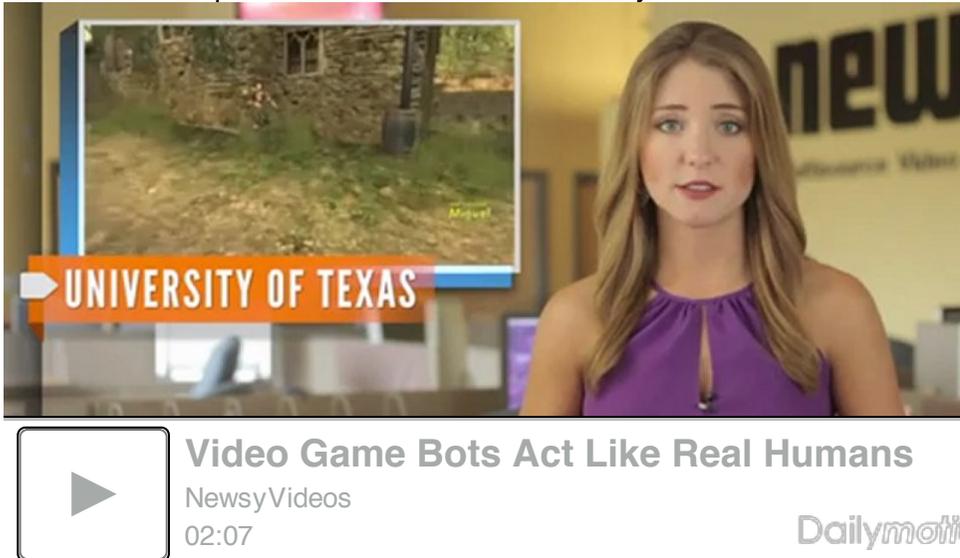
In the competition, computer-controlled bots and human players (*judges* combat, and the judges try to guess which opponents are human. To win indistinguishable from a human player.

- [Home](#)
- [Result](#)
- [Teams](#)
- [Competition Rules](#)
- [Development](#)
- [Press](#)
- [Publications](#)
- [FAQ](#)
- [Quiz](#)

- [The 2008 Competition](#)
- [The 2009 Competition](#)
- [The 2010 Competition](#)
- [The 2011 Competition](#)

Two Teams win the BotPrize!

Here is a video piece about the result from DailyMotion:



New! [AI Game Research clearing house](#) with news about new developments in AI Game Research.

The BotPrize in 2012 joins in the Centenary Celebration of the Life and Work of Alan Turing. Visit the official site [here](#).

ALAN TURING YEAR



Some human-like bot sites

[Video Game Bots Act Like Real Humans](#) by [NewsyVideos](#)

In a breakthrough result, after five years of striving from 14 different inte countries, **two teams** have cracked the human-like play barrier! It's es prize has been won in the 2012 Alan Turing Centenary Year. Where to n year we hope to propose a new and exciting challenge for bot creators to the next level of human-like performance.

The winners are the UT² team from the University of Texas at Austin, a student from Romania, currently studying Artificial Intelligence in Brest, F consists of Professor Risto Miikkulainen, and doctoral students Jacob Sc results can be found on the [results page](#). The two teams will share the \$ 2K Games.

- [sqlitebot](#)
- [conscious robots](#)
- [chatbots](#)
- [ConsScale - a biologically-inspired scale for measuring cognitive development in natural and artificial creatures.](#)
- [UT²](#)



Left-top: Mihai Polceanu
 Middle: Philip Hingston
 Bottom-right: UT^2 team

Here are some thoughts from Mihai about his bot

[...] my idea was to make the bot record other players at runtime instead of having a database of movements. This way, if the bot sees a non-violent player (shooting at the bot but around it, or shooting with a non-dangerous weapon) it would trigger a special behavior, mirroring. This makes the bot mimic another player in realtime, and therefore "borrowing" the humanness level. I thought that if my bot would meet a human, then it would seem human itself. I know this idea is not too new, actually it was inspired from some "how to be a salesman" articles I skimmed, which said that if not too obvious, mimicking can make a peer more comfortable with a conversation. The bot records keyframes of the target's actions, and plays them back with a small delay, and without full fidelity, so that it appears somewhat independent (mimic, not copy).

Due to the lack of long-term memory and the realtime nature of the mirroring module, I was obliged to use classic graph navigation, which I customized in order to hide traces of bot-like movement such as the brief stops on navpoints, aiming behavior and elevator rides. The bot's movement and aim are completely separate, so that it can concentrate its aim to what requires attention while moving freely.

The bot also has the ability to remember its target, follow it when out of sight and dodging behavior based on the firing direction of its opponent. Also inspired from how human players generally play, the bot will forget its target if another opponent is more aggressive.

I believe that BotPrize and other related competitions are a great way to test new ideas or old ones in new contexts, a great challenge for programmers and why not other fields of activity.

The UT^2 team had this to say

The complex gameplay and 3-D environments of “Unreal Tournament 2004” require that bots mimic humans in a number of ways, including moving around in 3-D space, engaging in chaotic combat against multiple opponents and reasoning about the best strategy at any given point in the game. Even displays of distinctively human irrational behavior can, in some cases, be emulated.

“People tend to tenaciously pursue specific opponents without regard for optimality,” said Schrum. “When humans have a grudge, they’ll chase after an enemy even when it’s not in their interests. We can mimic that behavior.”

In order to most convincingly mimic as much of the range of human behavior as possible, the team takes a two-pronged approach. Some behavior is modeled directly on previously observed human behavior, while the central battle behaviors are developed through a process called neuroevolution, which runs artificially intelligent neural networks through a survival-of-the-fittest gauntlet that is modeled on the biological process of evolution.

“In the case of the BotPrize,” said Schrum, “a great deal of the challenge is in defining what 'human-like' is, and then setting constraints upon the neural networks so that they evolve toward that behavior.

“If we just set the goal as eliminating one’s enemies, a bot will evolve toward having perfect aim, which is not very human-like. So we impose constraints on the bot’s aim, such that rapid movements and long distances decrease accuracy. By evolving for good performance under such behavioral constraints, the bot’s skill is optimized within human limitations, resulting in behavior that is good but still human-like.”

Miikkulainen said that methods developed for the BotPrize competition should eventually be useful not just in developing games that are more entertaining, but also in creating virtual training environments that are more realistic, and even in building robots that interact with humans in more pleasant and effective ways.

The UT² team has made their bot available at [this location](#) if you want to try it out (you’ll also need a copy of Unreal Tournament 2004).



ize trophy for 2012, created by Perth artist, Peter Reynolds. glass, and is about the size of a cantaloupe.



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[Home](#) [Result](#) [Teams](#) [Competition Rules](#) [Development](#) [Press](#) [Publications](#) [FAQ](#) [Quiz](#) [The 2008 Competition](#)
[The 2009 Competition](#) [The 2010 Competition](#) [The 2011 Competition](#)

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