Researchers unveil new technique to detect bots in casual online games

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(Phys.org)—Casual online games, such as FarmVille and Fantastic Contraption, have thousands of enthusiastic followers – but the use of automated "bots" to give some players an advantage is short-changing the companies behind the games. Now researchers from NC State have developed a new technique to help companies identify these bots, and take action against them.

Casual online games allow players to accumulate points, virtual objects and achievements, which are needed to progress through each game. But while the games are free, it takes time to get all of the online "rewards"

needed to advance. Game designers capitalize on this by selling online advertising space that players see during the game, and by allowing players to buy the rewards necessary to advance in their games. These rewards tend to be inexpensive, but can add up to significant revenue for game companies.

An emerging problem in the world of casual online gaming is the use of bots, or automated accounts that pose as players to amass these rewards. Human players can then log into the bot accounts, which have accumulated a host of rewards, and play the game at a high level without having spent the time or money normally associated with collecting those rewards.

The use of bots hurts gaming companies in two ways. First, players who use bot accounts do not buy rewards. Second, since human eyes are not on the game when the bots are active, no one is seeing – or clicking on – the online advertisements. This reduces the game's advertising click-through rate, which makes the game less attractive to advertisers.

NC State researchers have developed a technique for detecting these bot accounts without alerting the account holders. "This will allow game designers to differentiate bot accounts from actual human accounts, with confidence, and then cancel the account," says Dr. David Roberts, an assistant professor of computer science at NC State and co-author of a paper on the work.

The new technique works by monitoring game play to see how each player is moving his or her mouse and clicking on the screen. Bots can be identified using only this information because they do not have the same range of variability in how they interact with objects on the screen.

"Depending on the sophistication of the bot program, it may have some variability," Roberts says, "but not enough to fool our monitoring

technique consistently. If this technique tracks game play for any significant amount of time, it should detect a bot."

One next step for the research team is to deploy this technique in actual online games. "We're optimistic that we'll have agreements with online gaming companies soon," Roberts says, "and can start tackling the bot problem in the wild."

A second next step is to transition the technique from a purely observational process to an active one, which could detect more bots, more quickly. But the researchers want to ensure that their technique remains undetectable by account holders. "We want to make sure that anything we produce does not disrupt the experience of real, human gamers," Roberts says.

The paper, "Spatial Game Signatures for Bot Detection in Social Games," will be presented at the Eighth Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment, being held Oct. 8 to 12 in Palo Alto, Calif.

Provided by North Carolina State University

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