
The Ethics of Using Bots and Automated Agents for Research in Virtual Worlds

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Abstract

This paper presents a case study of the use of bots (automated agents) to conduct research within virtual environments.

Keywords

Research ethics, Gaming, World of Warcraft, Second Life, Bots and automated agents

ACM Classification Keywords

K.4.1. Computers and Society: Ethics

Introduction

Virtual worlds such as World of Warcraft (WoW) and Second Life (SL) present many ethical challenges for the would-be games researcher [8, 14]. First, the environment is less contained and is often more unpredictable than other naturalistic settings. Second, these immersive environments encourage players or residents¹ to assume roles and identities that may or may not reflect their “real world” realities [1, 11, 17]. Third, these spaces often blur the perhaps artificial division of public and private in ways the physical world

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¹ Players of *Second Life* prefer the term “resident.”

does not. Still, the sheer popularity of games (a recent report suggested around 70% of US households play computer or video games) [7], and their increasing economic importance makes them rich sites for research.

While much of the research in these environments relies on self-report surveys, interviews, and participant observation [4, 17] there is also data that can be gathered by automated agents or bots². Bots are often envisioned to be a way to populate more desolate areas of a virtual world with automated content [13], but they can also be useful for collecting data about in-game experiences deemed repetitive or tedious for researchers. For example, scholars examined proxemics in *Second Life* using avatars controlled by the Linden Scripting Language [9]. Others have shown these kinds of agents can be used to interact with groups of students offering reflective prompts for conversation in a learning environment, and suggest that with few enhancements, these bots could be used to run experiments designed by the researchers [15]. Still others have collected census data about the players in guilds in *World of Warcraft* [17]. These sorts of data collection methods raise a number of ethical issues, from how (or if) informed consent is provided by players, to the potential problems in letting automated agents do data collection with (perhaps) little researcher oversight.

Other data within these environments that could be collected by bots/automated agents would likely be interesting to games researchers. In *World of Warcraft* (WoW), for example, statistics about each player are

collected in the “Achievements” menu – from the number of hours that character has spent in game (accessed through the /played command) to the number of a “honorable” kills a player has to the number of times she has died. See Figures 1 and 2.

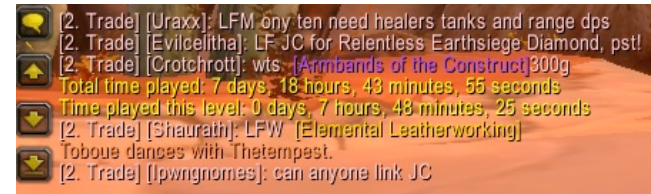


Figure 1. Results (in yellow) of a /played command in World of Warcraft.

However, these sorts of relatively benign statistics represent only one small portion of the total data to which the designers of WoW (Blizzard) have access. In these environments, players’ IP numbers are tracked, their chats are logged, and behaviors are monitored to ensure compliance with what Blizzard determines is fair game play [2, 3]. In addition, the game’s terms of service indicates that players’ computers may be monitored to determine if any third-party software related to the game is installed [3].

² “Bot” is an abbreviation of the term “robot” [16].



Figure 2. In-game achievements, including how many times the character has died, how many “honorable” kills she has made, and the number of hugs she’s given.

Pros

One can envision how automated agents and bots might be invaluable tools for games researchers. If researchers were interested in the kinds of achievements individuals complete over time in WoW, for example, they would have to approach players individually and ask them report the statistics directly. Since WoW has no cut-and-paste interface for text, these kinds of data would have to be collected through a series of screenshots or self-reported through the chat interface. This would be an arduous process, even for the most motivated research participant. Thus, using a bot or some other automated script might be a time- and cost-effective way to collect these sorts of data.

Cons

Wagner James Au, an embedded reporter in *Second Life* (SL) who writes features and blog postings about this virtual world, argues that having complete access to information about his informants would be an ethical misstep [1]. In researching an intriguing story where an individual living in a SL mansion claimed she was homeless in real-life, Au writes,

“...I was tempted to pursue the story offline. It would be easy enough to ask the company to trace her IP route, requisition her account information, and so on...To do so, I decided, would come at the cost of violating the reporter’s trust created by the context of a person-to-person press interview, suddenly turning it into an act of bird’s eye surveillance and interrogation.

So no asking Linden Lab (in this case) to pull chat logs from the servers, or fact-check the IP traceroute of a Resident who claims to be in, for example, China or Iraq. (As much as it’s especially tempting when reporting on a dispute between Residents, knowing full well that a trip to the chat server would forever end the ‘he said–she said’ ambiguity.) Instead, I report only what my avatar sees and hears, from screenshots and chat/IM logs” [1].

Au’s perspective implies that preserving boundaries between the game world and “real life” is critical. So, using automated agents may breach the game space in undesirable ways. For example, an automated research bot that initiates conversations with other players but can only chose from a limited set of pre-programmed responses might detract from players’ experience of the virtual environment.

Corporate and legal issues

Complicating these matters is the often-tense relationship between the companies that create these virtual environments and the researchers interested in studying human behavior inside them. While Linden Lab has worked closely with universities and encourages academic research, other virtual world developers refuse to allow or acknowledge researchers. As some researchers have noted [11, 17], requests to Blizzard from researchers often go unanswered. In addition, WoW’s end-user license agreement (EULA) suggests that using third-party software to gather information about players may be prohibited. It reads,

“You agree that you will not, under any circumstances: D. use any unauthorized third-

party software that intercepts, "mines", or otherwise collects information from or through the Game or the Service, including without limitation any software that reads areas of RAM used by the Game to store information about a character or the game environment; provided, however, that Blizzard may, at its sole and absolute discretion, allow the use of certain third party user interfaces..." [2].

Thus, researchers who want to use automated means of gathering information about players within the game run the risk of being banned from WoW permanently. Much of this may have to do with the potential use of bots by players to cheat and/or "farm" the game for in-game currency or resources [6, 10], and the lack of interest Blizzard apparently has in overseeing a fleet of research-related automatic agents that could overwhelm their servers.

Conclusion

While games are increasingly important research sites, they present numerous ethical issues. The use of bots and automated agents, while providing important information about players' experiences in game, may inadvertently breach individuals' privacy. Also, these sorts of tools may be disallowed under the terms of service and/or end user license agreements researchers agree to when entering these environments. In addition, the question of how to ensure when/if informed consent is needed when using automated agents remains unclear.

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