Human, all too non-Human: Coop AI and the Conversation of Action

Bart Simon
Concordia University
Country: Canada
simonb@alcor.concordia.ca

ABSTRACT
This paper considers the cultural sociological questions that might begin to be asked when players understand themselves to be cooperating rather than competing with the computer when they play digital games. Coop play with game AI in games like Call of Duty provides the basis for understanding human relationships with computers and machines in a way that may differ from the cultural historical antagonism embodied in a game like computer chess. This investigation also opens the doors for the analysis of emergent play in human-computer interaction.

Author Keywords
Sociology, posthumanism, cooperation, artificial intelligence, human-computer interaction, uncanny valley

REMEMBER DEEP BLUE

It was another end of an era; or so the pundits declared. In May 1997 IBM's Deeper Blue (the upgraded Deep Blue) finally beat Garry Kasparov in an epic 6-game "species defining" rematch and the age of the truly smart computer able to interact meaningfully with truly smart humans had begun [1]. But by 1997 with the realization of the most "intelligent" machine to date, that archetypal humanist accomplishment – a machine brain on par with our own (or the best of our own) - was already passé. Mechano a Mano chess playing 'brains-in-a-vat' were out. We were on the verge of the age of the Matrix (1999) where you had to be always already cyborg like Keanu to beat the AI at its own game in a world of simulacra. Who wants to be human? We all want to be augmented by technology. Now we prefer to be superhuman, posthuman or transhuman.

If the 80's were all about defending human capacity in the face of intelligent computation (the original Terminator film was 1984) then the 90's were about giving in to the seductions of the machine. Kasparov's famous quote that "machines are stupid by nature" would seem to have fallen on deaf ears… or has it? No phenomenon would seem to sketch this cultural conversion more prominently then the popularity of video and computer gaming as one of the fastest growing leisure pastimes in the industrialized world.

In light of the cultural significance of Kasperov vs. Deep Blue it is interesting to consider the extension of this through contemporary digital gaming. This is especially the case since one of the most prevalent models for both designing and thinking about digital games has always been the human vs. computer chess match as battlegrounds of perfect information (in the game theoretic sense) pitting the pattern recognition abilities of the superior human player against the ever-increasing memory of each iteration of the machine [2].

This is the core challenge of computer chess but also many other single player video games. Many of these games are 'in principle' versions of chess in which movement through a fixed domain space is governed by a finite series of rules. Chess is a known or knowable universe in which each opponent shares the same information as the other (at least in principle). The nature of the battle is therefore mental and not primarily dependant on the embodied capacities of perception or dexterity. One might raise the challenge that so-called "twitch" games actually favor embodied capacities (speed, dexterity, coordination) over purely mental capacities but this is arguably only true to a certain point for once the basic play mechanics are mastered the remaining challenge is a mental not a physical matter.

The argument that I am building is meant to suggest that computer chess and all games modeled on the basic architectures of chess can be understood in a broader cultural sense as setting up a test of our fundamental Cartesian humanity. The long version of this argument can be traced through a cultural history of chess in its association with enlightenment humanism, the history of the leisure practices of the upper class and the concept of human genius itself. The short version of this argument, and the one I will pursue here, focuses on contemporary digital games and the meanings of human-computer competition that have been inherited from the era of Deep Blue.

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FROM CHESS TO FPS

Indeed, partially related to the Deep Blue-Kasparov media phenomenon and partially a product of the popularization of the personal computer as a leisure device, sales of chess-playing programs (and indeed dedicated chess playing machines) in the 90s were brisk. Yet in the chess software market, it became clear pretty quickly, that since the average human could never compete with the top levels of the program maybe a little help would be necessary. In the case of chess, this meant either "dumbing" down the software or else providing computer-aided instruction ("do you really want to do that, Dave"). In the case of state of the art video games, however, it means providing the player with a computationally enhanced avatar (the equivalent of the Matrix's Neo) with abilities that far exceed human cognitive abilities or physical reflexes. No more games of pure information; the player must now be supported, indeed, augmented by the interface and software modules. The information is now shared by the player and the computational apparatus that supports her and like an athlete on steroids it is increasingly difficult to mark the boundary of human cognitive ability against the abilities of the computer itself.

I do not mean, of course, that video game avatars simply have inhuman abilities such as flying, wielding 200lb guns like plastic toys or the like. I mean that at the level of gameplay the game software is designed to fill in for a variety of human lapses and given the increasing complexity of game worlds more and more machine aid is required. Maps, meters, training modules, hints and cheat codes are just a few obvious examples but much of the help occurs below the level of the interface. Thus, executing something as simple as a jump in a jumping game amounts to a combination of the human player's ability to push a button at the right time and the software's generosity in allowing that close is good enough.

This is all done of course in the name of a good story and enjoyable gameplay and we are a long way from chess as a result. But, despite this, the illusion of testing the human against the machine remains as significant, and as meaningful for players, as ever. Take for example, LucasArts' Jedi Knight, which seeks to provide players with a quintessential light sword combat experience. My own experience with the game is instructive. During these frenetic fight scenes, and despite my own ham-fistedness, it took me a while to realize that my avatar was not quite responding to my button presses as I thought but that given a certain proximity of pixels and combination of button presses the software would take over and make my guy do spectacular leaps and flips. What was happening was a seamlessly edited sequence of interactive gameplay and minute cinematic cut scenes such that it was nearly impossible to tell when I was playing my Jedi knight and when the computer was playing him.

As a matter of play experience, this ghost in the machine is all but ignored by the player (and the designers would have it no other way) since the idea is to supply the illusion that the human player did it herself and moreover help sustain the leftover humanist fantasy (what Neil Badmington calls the "humanist remains") of beating the machine [3]. The enemies of the Jedi Knight appear to me to be clearly computer controlled whilst I claim responsibility for the success or failure of my own avatar. If I win, then, from my point of view, I have beaten the machine (sometimes players say euphemistically that they have beaten the game but really they have beaten the machine that is playing the game… this is why its often more fun after a point to play the game with other humans… In essence we presume that humans are generally "smarter" players).

This process of making me feel responsible for my own actions in games is one of the processes enhanced by the first person perspective of most contemporary games. I did it… with the avatars performance reinforcing my specific human capacities as meager as those may be. The machine is here effectively under erasure unless of course it "breaks." At such a point the typical novice player response is interesting; "how come the computer won't let me do what I want to do?" Such a comment momentarily breaks the illusion of human propriety and reveals the ghost of the machine at work. But the moment is short lived since a working game is meant to sustain the illusion not to break it. Another interesting and notable exception to the illusion of human propriety are the twitch games of the LAN party where the machine may, in fact, be fore-grounded such that a win might be credited to superior skill as well as a smokin' processor [4].

Generally though, the triumph is the meant to be the player's alone. In forum discussion after forum discussion, on all manner of digital games, players continuously speak of their abilities to beat the machine, to exploit its weaknesses and like latter-day Kasperovs, to chastise its stupidity. This is especially the case as the machine's primary role, like Deep Blue, is to be an opponent on a battleground for proving one's superior human capacities against a pretender.

Although I am building the case against residual humanism in gameplay it is also worth noting that forum discussions address the capacities of the opponent both through the anthropomorphization of the machine as weak, stupid, predictable, etc… and the extension of these qualities to the human designers (often in their political-economic context) – i.e. the machine is dumb, because the designers are stupid or they are bowing to the base economic rationality of the publishers. Despite this, play experience generally hides the hand of the designer to give the impression that the computer opponent plays by itself.

While game fans are experts at sussing the hand of the designer in a game experience, the practical elision of

all trace of human manufacture is part of the appeal of the game (indeed, it can be argued that hard core players often ruin this effect in games by being overly critical of the hand of the designer). Game designers take advantage of this and further the anthropormorphic qualities of the computer opponent by embodying the machine in avatars of its own… a series of mixed metaphors of otherness ranging from aliens to terrorists. The machine's avatars are generally governed by what designer's refer to as AI modules or engines using a number of different algorithms (some descended from Deep Blue) to facilitate decision-making and action that on the surface, mimics those of the player avatar.

For the sake of time I am going to leave out a discussion on what counts as artificial intelligence in game contexts and simply remark that most work with a kind of phenomenological interpretation of the "if it walks like a duck and talks like a duck, then it's a duck" kind. Ideally, the machine avatar is supposed to appear as if another human player is controlling it, but most game AI is far less autonomous in this sense than advanced chess playing programs. For economic and technical reasons programmers use a series of design tricks to make the machine avatars appear to be intelligent. Most mainstream AI researchers seem to agree that game AI is not AI at all but rather a series of more or less complex "if-then" decision trees that merely give the impression of intelligence. All of this presupposes that there is some consensus on just what genuine AI is, which there is not, but I am actually more concerned here with the impression or representation of game-based intelligence than I am with its formal definition.

One of these design tricks is displayed in the overwhelming focus of game producers on the visual realism of machine avatars… this more often concerns how they look but also how they move in a manner, which conveys intelligence. So it is a selling point of the newer games that opponents can look you in the eye or duck for cover when fired at. If understood in light of my argument about chess as a cultural expression of our humanism then this must strike us as odd. Deeper blue was always represented as a non-human machine. In descriptions of the Kasperov matches its silent coldness was always palpable.

Now the machine represents itself to us as other than itself, and more often than not as another human, a boss alien, or even another machine. The machine pretends not to be a machine. Is this Deeper Blue in denial? This is where we have arrived; Deeper Blue is no longer against us as machine against human but rather represents itself to us in a way that maintains the illusion of this distinction while all the while undermining it at every turn. This is what I mean by the humanist remains of what is essentially a posthuman conversion. We can not play chess any longer (we never could) without the help of the machine but the machine must still represent itself to us as an opponent to preserve the nature of the test (or the challenge). The machine's service to us is to let us think we are still autonomously human when in fact we are not. The computer game is actually the exemplary cultural device for producing the illusion of human autonomy in the face of the rampant digitization of everyday life.

In this article I have taken for granted much of the theory behind this argument but this kind of cultural analysis is ultimately wedded to a kind of critical posthumanism that can be found in the writing of Donna Haraway [5], Bruno Latour [6], or Katherine Hayles [7]. The explicit concern of a critical posthumanist approach to digital games can here be drawn from Jean Baudrillard [8]. Its not that we are facing a problem of distinguishing real humans from fake humans (this is a problem that defines AI in general but in games this is never a problem despite what the pundits say) but that we are increasingly provided with better and better simulations that help affirm our faith in our originary humanness since the fakes go down in fiery defeat every time (I presume I do not need to elaborate then on the U.S. Military's current love affair with video games and game-based AI here -- victory is an "in principle" certainty and the soldier's agency in that victory is paramount). All the while of course, we have never been human since the machine has co-orchestrated the event. This is the case with Jedi Knight but it is also the case with Kasparov's defeat at the hands of Deeper Blue (but this is another story). What if however, we changed the game?

AN INTERLUDE ON 'BOTS

For quite a few years now I have been inspired first by Sherry Turkle's and then Lucy Suchman's conversations with a variety of software agents available online. I get the students in my introductory sociology of cyberspace class to participate in a kind of mass chat with me typing in various sentences tossed out by the class. It dawned on me that my students didn't have a particularly high opinion of these chatterbots. When the 'bot couldn't respond meaningfully to a student (which was most often) then a common response was Kasperovian, 'what a stupid program' and 'what's the point of this?'

About two years ago, following a talk I saw Suchman give, I turned this exercise into more of a game. A kind of inverse Turing test where, following a brief lecture on Erving Goffman and saving-face (amongst other things), I instructed students that the goal of the exercise was to keep the conversation going no matter what the 'bot said. Interestingly, despite my instructions, the students had a greater interest in actively "breaking" the conversation and exposing the stupidity of the 'bot than in saving "its" face and keeping the conversation going. I remain intrigued by the way we pit ourselves against the 'bot in the same way Kasparov is pitted against Deeper Blue.

This it seems is what lies at the core of what turing test situations have become in contemporary digital culture.

The sociologist of science and technology, Harry Collins has rightly observed in his discussion of artificial intelligence, spies and enculturation that against a skeptical human with greater resources, a human impostor (let alone a nonhuman one) has no chance to pass for a cultural native [9]. But I think this has less to do with the process of human enculturation than with the moral imperative to "out" the nonhuman. Turing tests, as others have argued, are tools for boundary work. My classroom 'bot chats turn into modest versions of the voight-kampf test from Bladerunner and signs of otherness are immediate grounds for "retirement."

CO-OP AI AND THE CONVERSATION OF ACTION

The suggestion is that turing test-like situations are a poor frame for articulating a more critical understanding of what it means to be posthuman and it is with this in mind that I have begun to consider co-operative AI in games. Coop game AI is different in that here the machine is tasked with helping the player against the competitive AI or more rarely another human player. Note that this is not quite the same as the invisible hand of the computer servicing the illusion of human autonomy (and following Haraway it is arguable this has been the fate of much of the most promising cyborg discourse) [10].

Instead, the machine is embodied as an avatar "comrade" or even "friend." Crucially the camaraderie here is not just window dressing (like that annoying Microsoft talking paperclip) but a matter of interactive, if not intersubjective, achievement. This can be seen for instance in Activision's Call of Duty 2 – a WWII/*Saving Private Ryan*-esque first person shooter in which one plays out historical battles as a soldier in a platoon. The game is remarkable in producing a kind of cinematic experience of being one figure in a pitched battle of hundreds and your survival is intimately tied to the behavior of your comrades. It becomes clear after dying the umpteenth time that sussing out the mechanics of the coop AI is crucial; you must move as a group, you must wait for cover fire, you must protect your mates, etc… There is almost no dialog here, your comrades do not pretend to be able to hold a conversation in the trenches, instead there is what I call 'a conversation of actions' and the increasing recognition that you must keep 'face' with the AI in order to effectively play and make meaning of the game.

Consider this example. In one epic scene you are a Russian private storming a German held railway station in Stalingrad. You begin the scene crawling through pipes on your own and drop down into a room full of comrades in a fire fight. There is a sense that they know what's up and you take a moment to get your bearings then you move and a group breaks off to follow you. Depending where and how fast you move your comrades will take up positions nearby. If you move too far too fast you are on your own. You cannot direct the troop with menu commands (you are not in control in that sense) rather you must in a sense spend some time learning the algorithms that govern the movements of your comrades. The action is meant to be cinematic and thus a re-mediated Spielberg experience passing itself off as realistic but that feeling is mitigated by the strange inhumanity of your comrades… they don't speak, they do not appear as individuals, there is an endless supply of them. And yet, they act. They act on behalf of an AI module just as your avatar acts on behalf of you. The AI is tracking you and modifying its avatars actions and you must learn to track it. This mutual tuning is done though action in the game, a conversation of actions; and once you find the rhythm combat is a synch and the feeling when combined with the uplifting music is euphoric.

Of course you can "break" the AI. You can run off alone, fool the AI into running your comrades into walls and stuff like that but ultimately moving forward in the game requires you to learn and practice this conversation of action. It becomes apparent in a way not nearly so evident in other games that one is communicating with the game AI (as limited as this may be) in a form distinct from the AI's avatar as a simulacrum of a human soldier. I think at least two interesting things are going on here. The first is that despite the game industry's overwhelming desire for us to forget the machine in the name of immersive spectacle we are drawn to engage the machine intelligence as machine intelligence (rather than as a pretense to human intelligence signified by the avatar simulacrum of a human soldier). Second, the pretense to human intelligence, the representation of agency and autonomy, brings us into this engagement in way we cannot avoid unlike the invisible machine apparatus that supports our own avatar (the transcendental humanism of the Matrix) or the visible otherness of deeper blue (the Cartesian humanism of Kasperov).

Both of these aspects of the experience are important since without the pretense to human intelligence the machine is just running a program; it isn't acting at all. Like Deeper Blue it must at least be perceived as a pretender. But, this pretender is not matching wits with you, it is making its own kind of decisions, it is clearly machine action. At times, I think this zone of engagement is similar to, Japanese roboticist Masohiro Mori's concept of the "uncanny valley" and it is the possible aporia enabled by playing with the uncanny that I am pursuing in the name of a critical posthumanism [11]. Mori noticed at a certain point the more like real humans robots (simulacra) appeared the more uncanny they seemed. Like a corpse… and at this limit human subjects would become more horrified than comforted. This was intended as an observation about design and an overemphasis on human realism but in Freudian theory the "unheimlich" can produce moments of great insight. I am suggesting that moments in CoD are unheimlich in this way. The human player is put into an uneasy relationship with the machine which is facilitated by gameplay.

These co-op games are not however the beginning of some new renaissance in human-machine relations. In the forum discussions about Call of Duty 2 seasoned solo gamers complained about the slow pace and stupidity of the coop AI arguing in some instances that it was simply better to go it alone. Still others found that the co-op was smart enough to handle all the combat itself and talked about sitting idly by while the co-op AI effectively completed the tasks taking on all the risk itself. The point is not that coop AI puts us in a more morally respectable position vis a vis the machine but that coop AI opens up the field of exploration in way that Turing test driven competitive AI has all but shut down.

THE SOCIAL IMAGINATION OF HUMAN-COMPUTER RELATIONS

Where then is this research headed? I was initially attracted to WW2 games for this in fact not because of coop AI but because of a broader project that considers the ways games function intentionally and unintentionally as technologies of social imagination. That is, games are devices for the collective imagination of social relationships at all levels; nationalisms, ethnicities, genders, institutions, small groups and most compellingly – camaraderie and friendship. This is a chief concern of my work on MMOGs where the "game" broadly construed is used as a tool for constructing the meaning of friendship amongst other things. But the model of MMOG friendship unsurprisingly bares a strong resemblance to ideals of military friendship (a topic of intense study in the now almost defunct field of military sociology). So off I went to military games to study constructions of friendship (BF is great for this) but in the back of my head is always the sociological hard case.

Can a study of friendship make any sense in the context of a solo game? I will never forget the game designer who approached me after a talk arguing for the essential sociality of digital games. He said to me that the only reason he plays games is to get away from people… to be antisocial on purpose. He is right but with this my argument here is thrown into bold relief. The solo game is posthumanistically social and that critically posthuman gameplay generates a reflection on the relationships we develop with machines whilst humanistic gameplay supplies the illusion that the player is the only autonomous agent in the room. So, of course I now wonder, what would the social imaginary of friendship with a machine look like?

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