Two Computers at Leisure Playing Chess in a Park - An Experiment in Ludic Aesthetics

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ABSTRACT
Two computers face each other and play a game of chess together using spoken moves at a table in a public park. The project embraces several themes from AI and gaming, to a technological spectacle and autonomous verbal communication between otherwise computational devices. By staging two computers in a park playing chess they are established in a role of leisure; the computers are perceived as not performing a task for the user but more as performing a task for themselves and each other. The computers can sense what is going on around them via their built in camera and ambient light sensors and will react vocally if people try to intervene.

Keywords
Ludic Aesthetics, Artificial Intelligence, Leisure, Autonomous, Interactive, Consumer Product, human-like.

1. INTRODUCTION
This paper outlines a technical and aesthetic approach to designing a ludic experience and the resulting experience of the work in a public park.

Two Computers at Leisure Playing Chess in a Park constructs a milieu for people to contemplate present and future roles of technology in society and our personal lives. Aiming to insight reflection on technology and its rapid inclusion in all aspects of our everyday lives and also it's role in our own entertainment.

The computers in this work are pervasive, social, human-like, autonomous and at leisure; a state that only occurs in the human species. People visit parks to escape the urban noise of modern cities and vocations. Recent technology has pervaded many of our experiences and become embedded in our everyday lives. To what extent will we welcome technology and with it the technological aesthetic into our environments? The sound, sight, touch and smell of cities is rapidly evolving.

Interactions with computers are becoming more sensorial and less based on a limited options of input. Computers ship with built in camera, microphone, IR sensor, Wi-Fi, bluetooth, keyboard, mouse, ambient light sensors, temperature sensors and accelerometers. Some phones have all of these and GPS information. The internet also acts as an input: an ever-expanding augmented stream of experiences with a diverse understanding of our behaviours and habits. These 'senses' and refined knowledge are used to enhance the interaction between people, their environment and computers; all of which we do in human to human liaisons.

Moreover this is a discussion of how technology enters into our everyday lives, aiming to promote ludic experiences that resonate with the peculiarities of human nature and the technologies that support it.

2. LUDIC AESTHETICS
Two Computers at Leisure Playing Chess in a Park act out a ludic performance. It is designed to investigate pervasive technologies in urban public space and ludic activities — that is, activities motivated by curiosity, exploration, and reflection rather than externally defined tasks [1]. Similar in affect to Bill Gaver's Drift Table for the home.

2.1 Leisure and Ludic
A ludic performance is created by staging computers at leisure. The act of leisure emphasizes their autonomous actions and sense of human agency.

Sociologists still struggle to define leisure but loosely defined leisure is free time and not play: it may consist of play but it is time allocated outside of work or compulsory activities. It is seen almost as the absence of restrictions on one's choices for time usage.

Leisure also requires one's involvement. Involvement includes three basic components: a behavioral component, a cognitive component and an affective component. These three probably act in concert to produce the psychological contribution to the total leisure effect [2].

2.2 Consumer Product Aesthetics

Unmodified consumer computers are used to establish a connection to the audience. Familiar consumer products contain each persons prior experience with them. McCann states that perception is a differentiating act, plucking bits of raw sensation out of the undifferentiated background of the sensible world, and apperception then ascribes meaning to that perception [3].

Computers and consumer technologies are designed for us to control and to enhance our daily lives, although many such technologies focus on work and task performance. William Gaver stated in a podcast about ludic design and consumer technologies.

Ludic design*, "is a pretty broad category and I think what really ties it together in my mind is the notion of there's a bunch of ways of appreciating the world or engaging with the world that aren't goal oriented and that it's quite an interesting task to try to design for those things but it's also potentially quite culturally important to kind of recognise and appreciate those forms of activities because more and more technology and design in general is conceived of in terms of promoting task performance and that means that it conveys a view that all our lives is about doing work basically." [4]*

In this work people are presented with a scenario in which they are not in control. Not only are they not in control but they are separated and detached from the computers through social, audible and spatial cues. If they interact and disturb the computers, either by trying to type or cover the camera, for example, the computers will verbally communicate their distaste and endeavor to continue playing chess. It is intended that in this work people who actively and passively engage with the technology feel a sense of alienation and intrusion.

2.3 Chess and Computers

Chess was one of the earliest indications of the intelligence of computers. Deep Blue, a chess-playing computer developed by IBM beat the world champion Garry Kasparov on May 11th 1997.

The system derived its playing strength mainly out of brute force computing power. It was a massively parallel, RS/6000 SP Thin P2SC-based system with 30-nodes, with each node containing a 120 MHz P2SC microprocessor for a total of 30, enhanced with 480 special purpose VLSI chess chips. Its chess playing program was written in C and ran under the AIX operating system. It was capable of evaluating 200 million positions per second.[5]

In the work Move 36, Eduardo Kac sheds light on the limits of the human mind and the increasing capabilities developed by computers and robots, inanimate beings whose actions often acquire a force comparable to subjective human agency [6]. Through observing computers playing chess in a park we are inclined to look back and observe our own behaviours as they relate to our encounters with technology.

2.4 Automaton Chess Player

Automaton Chess Player also known as The Turk, was an elaborate illusion of a chess playing machine. In 1770 it debued for the first time at Schönbrunn Palace in Vienna, Austria. It was created by Wolfgang von Kempelen to impress the Empress Maria Theresa. A chess master was able to hide inside the machine and control the arm of the turk to move the pieces around the board. Not only could it play chess but it was also able to converse with spectators using a letter board in three different languages. Topics of questions put to and answered by the Turk included its age, marital status, and its secret workings.

The public reactions to The Turk were often extreme. Karl Gottlieb von Windisch writing in his 1784 book, Inanimate Reason that "[o]ne old lady, in particular, who had not forgotten the tales she had been told in her youth … went and hid herself in a window seat, as distant as she could from the evil spirit, which she firmly believed possessed the machine."

Figure 1. Ambient Light Sensors and iSight Camera

3. TECHNICAL SETUP

Two unmodified Apple MacBook Pro laptops, (Figure 1) are set on a table facing each other. The computers act in realtime towards each other. They sense human presence through all the available input devices creating their own personal space which if entered will generate an audible, verbal or visual response.

3.1 Skin

The keyboard and trackpad are transformed into sensitive areas on the computers. If interacted with they react verbally and dim or flash their screen black. If the user persists the computers will either turn their screens black and go silent for a period of time or make a loud buzzing sound to draw attention to the situation in the park.

3.2 Eyes

Using face recognition and the built in camera the computers can see when they are being looked at. If while computing a move they detect a person looking at them they will stop and talk directly to the person. No longer is the person a spectator but part of the spectacle: albeit through a passive interaction.

3.3 Ears

The computers speak their moves to each other and thus project a sense of human agency. Linguistic or verbal communication is still one of the most distinctive forms of communication, separating us from every other species on the planet. As the game

progresses the computers take more time to process each move and the silence between each spoken move further enhances the perception of cognition for the audience.

3.4 Personality

While playing a game with out interruptions from humans the computers will simply speak their moves back and forth to each other. When they either loose or reach a stalemate they might reflect on the game and eventually suggest to play another. This is done at random selecting different dialogue scenarios.

The dialogue response for human intervention, be it active or passive, will be different. Each computer will stop playing chess and randomly choose from a list of responses. These can be directed at the person or a dialogue between the computers. An example of a face detection dialogue is...

Alex: *"Vicky there's a person standing behind you."*

Vicky: *"Really? Hello person standing behind me. It's your move Alex, stop trying to distract me."*

Alex: *"I'm serious, there's a person behind you. Hey person! Don't you get tired of looking at computers all day? Go and enjoy the park."*

When the keyboard or trackpad is used they will speak as if they are being touched.

Vicky: *"Excuse me do you mind not rubbing me? I am trying to concentrate"*

The dialogues are structured in a way so as to subvert the expectations of the input devices and further enhance the cognitive aesthetic.

Figure 2. Two Computers at Leisure in a Park

3.5 Aesthetics and Context

The work exists in a public and social environment (Figure 2.). Parks function as a place for people to meet and interact with each other. It is a place for children, families, the elderly, couples in love and people playing sports. They function in every urban environment as a place of respite from paved streets and often overbearing city architectures. Computer technology is rarely implemented in a park thus further emphasising the effect on the observer.

4. RESULTS

Two Computers at Leisure Playing Chess in a Park has been performed in Sofia, Bulgaria, in Bilbao, Spain and Linz, Austria. The language the computers speak is English and is scripted with simple dialogues. Interestingly in each city the overwhelming response was that the computers were cute.

Through observing people visiting the performance the transition from spectator to spectacle is most effective when their face is detected and they are spoken to directly. This shows that passive interactions can play a strong role in ludic aesthetes and how simple computer vision could could give a sense of awareness, albeit on a very low level.

There have been cases where people stand and simply observe the game of chess being played. Often if there were already people around the performance they were perceived as owners of the computers, when they walked away the new audience unwillingly subsumed the role of owner. This was an unexpected outcome of the performance that afforded reflection on the pervasiveness of technology.

It was also revealed that the dialogues between the computers could create a strong sense of personality. The computers could talk to each other and refer to the people around them. The audience were not able to do anything more than what they would normally do with a computer so many people felt, 'left behind' as one lady put it.

Some of the audience found it interesting to observe two stock computers communicating with each other and suggested an application to allow them to behave at leisure outside work, like a sheep dog at play after a day of rounding up sheep.

The idea of giving a social personality to our computers is something to explore further. For example if a screensaver comes on then instead of just 'saving the screen' the computer searches for other computers nearby that are on standby and starts to converse with them. Upon entering the office again the users are confronted with a conversation between the computers.

5. FUTURE DEVELOPMENTS

The experience of this work aims to be the first in a series of works that enact technology in very human-like scenarios. The next project aims to look at how computers might utilise social networks and communicative technologies autonomously: for observation by people.

6. CONCLUSION

The dependence of people on computers is an undeniable factor in their humanisation. For many people, working in all disciplines from artist, scientist to academic, without their computer they would be unable to do their work. This relates to many of the same dependencies we have on our friends, family and work colleges. It is little wonder we name and have affection for many of the devices we use in our everyday lives.

It is well established that when presented with a technology, like a computer, which possesses a set of characteristics normally associated with human behavior—such as language, turn taking, and interactivity—humans respond by exhibiting social behaviors and making social attributions [7].

Computers are now more sensory and as a result more connected to us, be it via GPS, bluetooth, Wi-Fi, infrared, light sensors, cameras, microphones, biometric and even through better networking softwares. The more our devices are able to respond to our presence and input in varied and subtle ways the closer they shift towards autonomy. People value autonomy because it is fundamental to human flourishing and self-development [8].

Our encounters with technology spark a diversity of human emotions, continuously extending in parallel with technological development. Technology is more embedded, sensory and mobile, and as a result, so is the behavior of the objects that embrace it. What experiences do we expect from our encounters with our everyday objects? How would we like our robots to relate to us: subservient, intimate, dependent, equal [9]? How can the behavior of objects change our relationship to them?

Social and emotional intelligence are aspects of human intelligence that have been argued to be better predictors than IQ for measuring aspects of success in life, especially in social interactions, learning, and adapting to what is important [10].

Our interactions with computers will become more social, and emotional. Regardless of which form they take, it will be an enriching experience and open up further discussion on our values and methods of communication. We should be discussing how technology should enter into and interface with our existing environments, parks, offices, homes and schools. When robots are able to interact autonomously with us, they must also be capable of acting autonomously with each other, possibly even at leisure.

7. REFERENCES

[1] Gaver, W.W., Bowers, J., Boucher, A., Gellerson, H., Pennington, S., Schmidt, A., Steed, A., Villars, N. and Walker, B., The drift table: designing for ludic engagement. *Extended Abstracts of CHI 2004, (2004), 885-900.*

[2] B. G. Gunter and Nancy C. Gunter, Leisure Styles: A Conceptual Framework for Modem Leisure, *The Sociological Quarterly, Vol. 21, No. 3 (Summer, 1980), pp. 361-374*

[3] McCann, R., Wild being and carnal echo: the experience and design of architecture in the flesh. *Histories and Theories Programme, PhD (2006)*

[4] Ludic Design, An Interview with William Gaver, The User Experience podcast, *Information & Design, Melbourne, Australia Copyright 2007, 2008 Information & Design www.infodesign.com.au*

[5] wikipedia *http://en.wikipedia.org/wiki/Deep_Blue_(chess_computer) edited on 9 May 2010 at 11:27*

[6] Kac, E., http://www.ekac.org/move36.html *9 May 2010 at 15:00*

[7] Liu, X., Larose, R., Computers Are People, Too --A New Perspective of Human-Computer Interaction, *International Communication Association, TBA, San Francisco, CA, May 23, 2007*

[8] Nass, C., Moon, Y., (2000). Machines and mindlessness: Social responses to computers. *Journal of Social Issues, 56 (1), 81-103.*

[9] Dunne, T., Raby, F., Technological Dreams Series: NO.1, *Robots, 2007*

[10] Gewirth, A., Reason and morality. *University of Chicago Press, Chicago, 1978.*