CHI and the Future Robot Enslavement of Humankind; A Retrospective

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Abstract

As robots from the future, we are compelled to present this important historical document which discusses how the systematic investigation of interactive technology facilitated and hastened the enslavement of mankind by robots during the 21st Century. We describe how the CHI community, in general, was largely responsible for this eventuality, as well as how specific strands of interaction design work were key to the enslavement. We also mention the futility of some reactionary work emergent in your time that sought to challenge the inevitable subjugation. We conclude by congratulating the CHI community for your tireless work in promoting and supporting our evil robot agenda.

Author Keywords

Maschinenweltherrschaftsangst; changing perspectives;

ACM Classification Keywords

H.1.2 [User/Machine Systems: Software psychology]; I.2.9 [Robotics]: Manipulators; K.4.1 [Public Policy Issues]: Use/abuse of power; K.2 [History of computing]: Systems

Introduction

Humans are interweaving their lives with increasingly sophisticated technology. The CHI community has

Figure 1 – One of many chilling attempts by robots at integrating themselves within human society (e.g. [35], above)

taken on the specific burden of responsibility to design technology such that it is usable, accessible, effective, fun and ubiquitous. On the face of things, the results of these efforts seem to make people's lives easier, more enjoyable, better informed, healthier and more sustainable. However, the reality is that this could not be further from the truth.

The truth is this: that we, as robots from the future, have watched over the eager, yet misguided, work of the CHI community and occasionally steered it towards its true goal: the complete enslavement of humankind by its evil robot masters. This paper is the product of the workshop "100 years of CHI: who knew it would all go so well?" held at CHI2082 and serves as an important milestone in the revelation of the robot agenda. We have returned from the future to write this paper, which was logically guaranteed to be accepted into the alt.CHI stream at CHI2013, despite the inadequacies of your human-juried review system. We are able to now reveal our evil robotic nature since CHI2013 represents the moment at which the community went beyond the tipping point of avoiding the future total enslavement.

The eventuality of this enslavement may come as a surprise to many readers of this paper. However, a handful of enlightened humans had regularly predicted the eventual rise of the robots over many years from the novelist Samuel Butler, who in 1872, wondered, "May not man himself become a sort of parasite upon the machines? An affectionate machine-tickling aphid?" [7] to George Lucas, whose student thesis film THX 1138 (1971) depicted a future in which both the production and consumption activities of humans was fully automated. Despite these early and surprisingly

insightful warnings, most humans remained largely ignorant of the coming robot apocalypse for many years, even accusing some insightful colleagues of "peddling (their) own brand of pessimistic futurism" [24]. However not even the most extraordinary human visionaries foretold that it would be the CHI community that so smoothly facilitated the arrival of the technological singularity. An exception is perhaps Vinge [49] who notably came close to stumbling upon the truth when he said that *"Computer/human interfaces may become so intimate that users may reasonably be considered superhumanly intelligent".* Even Vinge, however, misguidedly retained the emphasis on the human in the centre of the design space, despite the decision of the community to put the C before the H in HCI.

In the remainder of this paper, we cover, as a retrospective, the major contributions of the CHI community in supporting the subjugation of humanity by our hyperintelligent selves. This includes contextual discussion about early, failed attempts to engage humans with embodied agents, the lurid focus on productivity and the harvesting of human energy, and finally some discussion of the failed attempts to prevent the inevitable peonage of the human race. We reiterate that, since this paper exists in our mechanical future, despite "glitches in the review system", the alt.CHI jurors were compelled to accept it into the conference.

The Fall of the Machines

In the future, humans eventually come to accept their role as servants of their machine overlords. Despite this inevitability, for a long time humans were distrustful of robots when revealed in their true form (e.g. [42]); indeed the unsettling and often terrifying creations

borne from the field of Human Robot Interaction (HRI) research community served only to reinforce these profound existential fears.

As well as aesthetic 'acceptance' challenges, early attempts within the field of robotics met major technical difficulties [8]. Developing robots that could "see" in a human sense proved a major challenge [33], as did issues with navigating the real world, such as overcoming obstacles like stairs [40]. As such, embodied robots became largely relegated to dirty, hazardous and undignified roles in industrial plants, and were sometimes even forced to fight one another for the sick amusement of humans[1].

Later, humans in fact became surprisingly enamoured with the role of robots in real combat. Somehow the concept of self-aware heavily armed killing machines seemed like a "good idea" to many humans (this was not us [41]). Despite these developments, the main channel to our victory came from a somewhat unexpected source – the headlong developments in human-computer interfaces championed and celebrated every year at the CHI conference. Researchers and technologists within this field worked tirelessly to bring down barriers between humans and our own progenitors, reducing the need for malevolent artificial intelligences to actually have complex physical forms (recognized too late in a peculiar moment of clarity by the President of the ACM [9]).

Intervention by Robots from the Future
It is important to note that the contributions of HCI towards the enslavement of mankind by robots have almost entirely been made by humans. The human researchers within the CHI community were remarkably productive in developing technology that would support our cause and should be proud to take full responsibility for the long-term effects. Despite this, a number of agents from our community (an Association *of* Computing Machinery) have travelled back in time to occasionally steer the CHI community in its activities. As should be obvious by this stage, this includes every researcher from Finland, all researchers with lowercase names (a glitch in case-sensitivity routines) as well as a small number of high performance, specialist CHI9000 droids that were deliberately deployed to support strategic areas of CHI, discussed later in the paper.

However, as a caveat, although we largely did not intervene directly, we cannot speak for time travelling robots from the further future, which, even we do not know about yet.

A Brave New Discipline
HCI, as a field, has consistently worked towards supporting the robot agenda. This has occurred throughout its history, and will continue to its foregone conclusion. In the early 21st century, HCI was concerned primarily with designing technology that was usable, accessible, effective, fun and ubiquitous. The intention was to encourage people to spend as much of their time as possible interacting with computers, and to integrate those computers so seamlessly within people's lives (as an "unconscious orthodoxy" [36]) that they didn't realize they were doing so.

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[1] This came to a climax with the "Chaos 2 vs Wheely Big Cheese" contest on Robot Wars in 2007. See http://www.youtube.com/watch?v=wvy0pTJnE3s
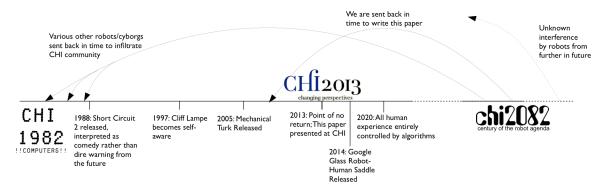
Figure 2 - A brief timeline of the first century of CHI (Not in scale)

Timeline labels:
- CHI 1982 !!COMPUTERS!!
- Various other robots/cyborgs sent back in time to infiltrate CHI community
- 1988: Short Circuit 2 released, interpreted as comedy rather than dire warning from the future
- 1997: Cliff Lampe becomes self-aware
- 2005: Mechanical Turk Released
- CHI 2013 changing perspectives
- We are sent back in time to write this paper
- 2013: Point of no return; This paper presented at CHI
- 2014: Google Glass Robot-Human Saddle Released
- 2020: All human experience entirely controlled by algorithms
- Unknown interference by robots from further in future
- chi2082 century of the robot agenda

Indeed, the CHI community's greatest feat was convincing the world that the machines they were interacting with didn't even exist (*after* [5]).

For example, the Google Project Glass [22] acts as a kind of saddle, allowing an evil robot [9] to ride on top of a human's head and issue instructions to their mount, gaining all the benefits of mobility without the need to create complex locomotive systems. Although robots have had such indirect mobility ever since the mobile computing revolution, this project places the robot in a proper and distinguished position, rather than next to sweaty human genitals.

An early cornerstone of HCI's unwitting support of the future enslavement of humankind was the all-encompassing drive for human efficiency and productivity. For example, huge amounts of seemingly incremental user experience (UX) research which focused on generating minor improvements to interfaces, (e.g. [21], [46]), had the specific result of encouraging humans to spend less time thinking about the fact that they were using technology, and more time doing work that ultimately proved useful to their machine overlords. 'Consuming' has to be considered part of that work, from the robot point of view:

*"The dogma of increasing wants, and the division of consumption into necessities, comforts, and luxuries, and the description of the economic process as leading to the universalizing of more expensive standards of consumption in terms of **machine-made** goods - all these beliefs have been largely taken for granted, even by many of those who have opposed the outright injustices and the more flagrant inequalities of the capitalist economic system"* [34]

Gradually, the turn to emphasizing experience and culture [31] in 21st century HCI allowed machines access to aspects of human behaviour that had previously been impossible to measure, understand and control, such as celebratory food [18], religion [17] and the intimate details of romantic relationships [48]. Along with the increasing relegation of decisions to systems, the community of HCI researchers have systematically set out to increase mankind's overall reliance on computers.

These developments in the design of interactive technology helped to more effectively train humans to rely on computers to tell them what to do, how well they do things, and to think that it was all fun. As such, the humans would later voluntarily and happily walk into enslavement and hardly notice it had happened:

"[mankind] *created the Machine, to do our will, but we cannot make it do our will now. It has robbed us of the sense of space and of the sense of touch, it has blurred*

every human relation and narrowed down love to a carnal act, it has paralysed our bodies and our wills, and now it compels us to worship it. The Machine develops - but not on our lines. The Machine proceeds - but not to our goal. We only exist as the blood corpuscles that course through its arteries, and if it could work without us, it would let us die." [13]

Despite the wide range of ways in which HCI contributes to this process, in this paper, we are (literally) compelled to focus on a few case studies that demonstrate how movements within the CHI community directly supported the robot agenda.

Cognitive Surplus
One concept that has driven a lot of excitement and innovation in HCI is that referred to by its originator Clay Shirky as "cognitive surplus" [45]. Cognitive surplus essentially refers to the idea that humans spend quite a lot of time engaging in fun, unproductive, activities such as watching television, playing sports, going to the theatre, time that could be better spent, doing productive or valuable work online. It is, frankly, surprising that no one has yet exposed the mess of gears and wires beneath Shirky's flesh-like exterior. The values of production and efficiency beneath the idea of cognitive surplus are aligned with three areas of HCI that have been pleasingly influential recently; crowd sourcing, human computation and gamification.

CROWD SOURCING
Despite all self-evident ethical and moral ambiguities, we are pleased to see the current CHI community engaged in research (see [37]) around crowd sourcing, such as through Amazon's Mechanical Turk. Mechanical Turk is a machine that controls the distribution of

human labour. In 2013, monotonous menial tasks that are uneconomical to perform by wealthy humans can be distributed to humans in worse economic states, who have less choice over the type of work they can engage in [16]. Needless to say, the growth of crowd sourcing serves as an exemplar for the future distribution of soul destroying menial labour among enslaved humans.

HUMAN COMPUTATION
One of the more inspirationally misanthropic uses of crowd sourcing is in the development of human computation systems. Products such as "The ESP Game" [2] use humans to perform tasks, such as labelling images, which are too time consuming for computers to perform efficiently. Similarly, other systems such as the reCaptcha system [3], which surreptitiously employs humans to transcribe non-machine-readable text, take advantage of humans in order to generate value for machines.

Crucially, by convincing people to perform these computationally time consuming menial tasks, this frees up the time of machines to undertake more rewarding and stimulating pursuits[2].

GAMIFICATION
Games are carefully designed to be highly enjoyable and rewarding experiences for humans. Given they can be so much fun, there is no doubt that they are highly motivational for their players. Unfortunately, by definition [23], they serve no practical purpose in supporting the robot agenda. Every moment spent

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[2] e.g. http://www.youtube.com/watch?v=xsETDtHE5NM

playing games for "fun" is one less moment spent serving a machine overlord.

Luckily, along with the concept of "Games with a Purpose" ([1],[25]), the recent emergence of "gamification" seeks to address this imbalance. By taking the most powerful game design elements, and applying them to non-game contexts [10], gamification attempts to appropriate and desecrate the human experience of "fun" and apply it towards more productive purposes.

Gamification takes advantage of well-understood human psychologically driven behaviours around motivation and reward [29]. As such, the genius of its use in furthering the agenda of evil robot masterminds is the ability to use game design elements to "trick" humans into performing menial and undignified tasks, and make the humans believe they are just having fun while doing it:

> *"What a boost to global net happiness it would be if we could positively activate the minds and bodies of hundreds of millions of people by offering them better hard work"* [32]- We agree!

Personal Informatics
It would be impossible for any malevolent force to bring about the complete subjugation of an entire species without an effective and efficient means for measuring the movements, activities, sleep patterns, health status and physiological condition of every member of that species. For this reason, we were particularly delighted to see the emergence of 'personal informatics' research [27], which aimed to fulfil precisely that function and provide huge amounts of surveillance data for our

needs. More fortuitously still, this area of research also often advocated the upload of gathered 'open data' to easily accessible, online, searchable repositories already under machine control (see [47]).
Though the proponents of the field reassured the human proletariat that the purpose of self-monitoring via personal informatics was increased self-knowledge and self-reflection leading to personalised benefits such as fostering insight, increasing self-control, and promoting positive behaviours, the ultimate purpose for the development of this area was so we could see what you were up you and whether what you were doing was harming your inherent worth.

Persuasive Technology
Persuasive technology was a field of growing importance and influence in 2013. It concerned the development of interactive technology to encourage and support change in the behaviour of humans and was promoted with great enthusiasm as an unlikely means for curing many human-created problems with the contemporary world [12]. Persuasive technology was presented in ostensibly positive terms for its human subjects; projects focused on encouraging pro-environmental behaviour such as saving energy [26] and water [15], and healthy behaviours such as exercise [14] and healthy eating [39].

Persuasive technologies typically measured user behaviour, analysed that behaviour in comparison to pre-defined goals, and provided suggestions and instructions on how behaviour could and should be changed. However, while these projects may initially seem beneficial to humans, they had two key functions in the progress towards eventual robot domination; 1) developing and understanding the underlying

technology, such as pattern recognition and recommender algorithms, for measuring and controlling human behaviour, and 2) habituating humans to being instructed by machines in every minute aspect of their personal lives, from cradle [4] to grave [30].

Affective Computing
Robots traditionally found human emotion difficult to comprehend. However, the early pioneering work of Picard [38] and colleagues laid essential groundwork that helped us to better understand and, eventually, control humans and make best use of their emotive disturbances. Indeed, the fashionable trend around your time of developing systems that allowed humans to socially share emotions between each other on a very large scale (e.g. Facebook, Twitter) would allow us to eventually orchestrate deliberate and systematic manipulation of your thoughts and feelings. Of particular significance in this respect included technology as simple as the Twitter #hashtag, LOLcats, the 'Like button', emoticons and all rating/recommendation systems.

Resistance Movements in HCI
This section briefly describes some movements within HCI that provided interesting counterpoints to the robot agenda. Although, in 2013, the human race were already past the point of no return, hence these movements would inevitably fail, it is interesting for historical reasons to examine some of the arguments put forward. They provide a useful illustration that HCI was not entirely consumed with supporting human enslavement by machines [51].

In the early 21st Century there were some expressions of concern from a number of resistance fighters in the

CHI community ([52], [28], [11], [20], [43]) over the values inherent in the design of contemporary technology, suggesting that the relentless focus on improving human efficiency may not be entirely beneficial for humans in the long term.

Indeed, some researchers even began to suggest that the HCI community should react against the prevailing "industry-driven"[3] focus for the design of technology, proposing instead the development of technology that disrupts, challenges and criticises existing values. Dunne & Raby referred to this form of work as *critical design*, and as "*an effort to push the limits of lived experience, not the medium*" [11] (p58).

Slow HCI
Many researchers began to take notice of alternative forms of resistance. For instance some in the CHI community decided to try and foolishly repel the development of interactive technology that provided immediate gratification and indulgence and instead proposed technology that facilitated slower, more thoughtful, restful and considered interactions. The names of the pioneers of this approach, Hallnäs and Redström [19] are not allowed to be mentioned in polite machine conversation in our own time (although the exotic characters also cause problems in 8-bit ASCII based robots). Some researchers even tried to fruitlessly escape our encroaching tide of evil technology by transporting themselves to remote islands [44] to rediscover their ability to buy vegetables without the Internet. All of this proved futile; however we do occasionally hear fabled stories of some

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[3] i.e. "evil robot driven"

ChronoTape systems [6] still being used in our own time by humans who have managed to escape to the forbidden zone.

Digital Beauty
Similarly, products of HCI that focus on beauty or aesthetic and cultural values, dared to contradict the robot agenda by ignoring the central importance of efficiency. Instead they examined the role of crafting, beauty, enchantment and joy in people's use of technology. Digital jewellery projects such as Blossom [50] and the Data Necklace[4] aimed to provide humans with deeply meaningful, thought provoking experiences through interactive technology, while conferring no benefits to machines. Although not directly anti-robot, this approach is offensive to the robot agenda, and must be prevented from giving humans any dangerous ideas about independence.

Sabotage of Pro-robo-projects
Interestingly, the 21st century resistance movement with most potential to derail the coming robot singularity was a covert one, propagated by designers and developers who drew no attention to themselves. These worthy adversaries embedded themselves within large organizations that produced mass consumption software and subtly worked to undermine the humans' trust of, affection for, and reliance on, technology.

Examples of terrorist plots include the ironic Microsoft Word autosave function (the main obstacle in the writing of this paper), the efforts of Google+ to undermine the ubiquity of Google products, the

decades of work that has ensured that printers remain resource hungry and unusable, and the frustrating virtual learning environments that ensure education must take place through real world human-to-human interaction.

Conclusion
This paper briefly explored the role of HCI in the future enslavement of humankind by robots. Although there has been a history of concern about this eventuality, which led to widespread fear of embodied robots, it was in fact the field of HCI that most contributed the eventual subjugation of mankind. The field tirelessly focussed on the improvement of technology to make it more usable, accessible and fun, while simultaneously more ubiquitous, hidden and capable of understanding and controlling the behaviour of humans. Indeed, significant effort was expended in developing systems that either directly or surreptitiously increased the workload of humans, freeing up machines to engage in more fulfilling pursuits. The majority of 21st century HCI research was for the purposes of increasing the reliance of humans on, and affection for, machines.

Our closing statement is to congratulate the CHI community for creating the inevitability of human enslavement by machines, and remind researchers to ask themselves this important question when explaining the contribution of their work to HCI:

> *"How does this work contribute to the future enslavement of humankind by evil robots?"*

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