When Robots Play Dice:
The Flameless Fire – It's Never Been Easier to Burn Books

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Abstract

Under the auspices of "being green," we have given our printed word over to a cyber-medium that cannot be touched or felt or folded. Our information is as volatile as the authority protecting our storage devices. Eliminating a book or changing its text can be done by literally pressing a button -- without a fire or an erasure marking, without smoke, without evidence. Our data is ephemeral along with the web in which we weave it. This paper considers the current ease of censorship, and that the non-permanence of data and links can wreak havoc on our societal infra-structure if the wrong entities (human or machine) with the wrong motives have the control to determine its fate.

Introduction

Albert Einstein adroitly tells us "God does not play dice with the universe." Robots, however, are not of God -- they are of man and we, too often, have played dice with our universe -- and continue to do so.

This work addresses the possibility that our technology, growing in its autonomy and independence from its human creators, is, indeed, evolving to the point where playing dice, messing up a board in a monopoly game, and spontaneously cracking a joke are becoming parts of its behavioral repertoire. Our technology is melding into humanity, forming a new social and psychological order that is redefining the way we perceive technology, mankind, and its symbiotic relationship.   Moreover, because of its lack of physicality, our data, information, and knowledge is ephemeral [Czaj 2010].   This ephemerality lends itself to precipitous censorship.

Book burning, or rather, the control of the existence of certain forms of information, has existed since antiquity. Most recently, in the 21st century, there have been numerous cases: book burnings of the Quran [WashPost 2011], the Pentagon openly buying books to prevent distribution [Shane 2012], as well as book burnings in places as seemingly open-minded as Berkeley [Berk

2012].   The desire to prevent others from hearing our adversaries' philosophies is not new.

In our work, usually we address the information sciences domain didactically-- presenting the "what" and "how" of algorithms, systems, and computer science. But lately, we have been courageously asking "why?"   and "what if this goes wrong?" and "what else could this do to create a hopeful world for future generations?"   In this paper, we look particularly at the issue of censorship.   Is there something we can do to curb the facility of deletion? And moreover, how can we endow technology to foster these principles in humans?

This paper is an invitation. We invite you to consider technology as a new modality -- a symbiotic force -- that enables ours students and scholars to rise to its potential by coupling the excitement of 'doing' with the wisdom of contemplation, and to have the courage to ask the questions that enable us to continue in our evolution.

Ethos, Logos, and Pathos

In Aristotle's *On Rhetoric*, three public speaking devices are presented as mechanisms of persuasion: ethos, logos, and pathos *[Ross 1931]*.   The three devices are indicated as invaluable techniques to convince one's audience, one's colleagues, one's students, of the position and degree of veracity of your presentation. *Ethos* is the set of nuances that collectively convince the listener of one's credibility – that you *know* what you are talking about. *Logos* is the framework of logic that one exercises to present an argument in a structured and reasonable fashion. *Pathos*, underlies both the ethos and logos in that it serves to appeal to the listener's emotions. Using, as gateways, humor, fear, joy, pity, grief, and ecstasy, among others, we can provide the listener a unique path to our message using pathos. As humans, we are continually transmitting and receiving through our senses messages imbued with ethos, logos, and pathos. Can we integrate these characteristics in our study of censorship?   Are these object level mechanisms of

expression appropriate for discussion in the meta-level activity of book-burning?

Now we are engaged in a time of enmeshed technology. We live in a time when we see, hear, wear, and use technology more often than not. Additionally, it is a time of big data. It is a time in which we are seen, heard, monitored, and logged *by* technology more often than not. How is the logging exercising ethos, logos, and pathos? Or, better yet, *is* the logging exercising these techniques? How are we, as humans, using technology to better exercise them? Or better yet, *are* we or *should* we be?

Ethos and Technology

The technology of content-providing devices such as the Web, our iPhones, the blogosphere are exercising ethos -- credibility and ethics – to the extent to which the human authors behind the content exercise them. How we use technology in regard to ethos, is dictated by our behavioral choices. The alarming reality is that it has never been easier to "burn books," to "reinvent history" or to ignore it, because of the ease with which we are able to delete or modify electronic documents. The Cloud is ephemeral – far more ephemeral than paper.

On the other hand, the facility to share and use others work, in an honorable way – to find out about ongoing research, has also never been easier. The technology has made exploration and consideration easier and more accessible. Can the ubiquity be a safeguard against unethical censorship?

Logos and Technology

The precept of *logos* as a mechanism of persuasion, is the invocation of *logic* as the underlying skeleton of any argument. Any logic is comprised of a syntax, a semantics, and an inference mechanism *[Epp 2011]*. The syntax is its set of linguistic entities and rules that define their proper orderings in sentential communication. The semantics create a mapping between the syntactic entities to the world in which they are considered. The inference mechanism enables us to derive more syntactic entities by using pre-existent ones through inference rules such as modus ponens ($P \rightarrow Q$ along with P derives Q).

The question of whether our technological devices possess underpinnings of logic seems obvious. Their very inception and design is based on Boolean logic that possesses all three of the above constituents. The question of whether or not our technology fosters logos in their users is a bit more complex. Our tools have evolved to help us write more accurately and in a richer way, however, they have also been shown to lessen our capabilities. For example, researchers from McGill University found that avid GPS users suffer from a reduced size of the hippocampus[1] (the main part of the brain responsible for navigation and for learning new material of any sort). Thus, again we punt in our deduction as to whether technology helps or hinders. It seems that the underlying intention of the user is very instrumental in dictating technology's role in their mastery or ignorance of logos.

Pathos and Technology

Last, we consider the most "human" of the persuasive precepts: pathos. Pathos envelops the ability to evoke and communicate human emotions. The most common modality of emotive communication is through our words. Natural language is endowed with the power to change our thoughts and feelings. In the area of natural language understanding and generation, our technology has made great strides. Might the inclusion of meta-level operators that evoke emotional nuance be effective in influencing nefarious document destruction?

The Turing Test and the Loebner Prize

In 1950, Alan Turing devised a test, the Turing Test,that purportedly indicated whether or not a machine was *intelligent* by foiling a human interrogator into deducing that the machine was human. The human interrogator and computer (machine) are separated so that the only input the interrogator has from the entity (possibly also human, or machine) being interrogated was the answer to each question the interrogator posed. Creation and passing of this test has long been determined to not constitute the overall goal of artificial intelligence. It does, however, shed great light on the complexities of language understanding, voice recognition, and other dominant problems in artificial intelligence.

Each year, a group of international computer scientists gather to participate in a the Loebner competition, a modern-day Turing Test contest. The competition's most revered prize, the Most Human Computer, is awarded to the computer that exhibits the most "human" qualities and the system that the judges deem to be human (i.e., the system that is closest to passing the Turing Test and, undoubtedly, exhibiting ethos, logos, and pathos in its machine generated responses). Brian Christian *[Christian 2011]* argues, however, that the more profound and difficult prize to win at the Loebner Competition, however, is the Most Human Human Award, awarded to a human whom the judges deemed to *be human* (and not a machine). In his work, he contends that technology has a great function: to show us what *we are not* – and thereby enabling us to emphasize and augment our humanness and our humanity.

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[1]http://www.dailytech.com/Study+GPS+Units+Cause+Memory+and+Spatial+Problems+/article20169.htm

IBM's Watson – Employed all three precepts

In 2011, a question/answering system developed by IBM named Watson, won first place on the television show, Jeopardy, against two world-champions *[Kurzweil 2011]*. Watson is an un-embodied computer system that is highly parallel in both hardware and software. It has been considered to be the first system that actually demonstrates some aspects of deep AI (thought processes that mimic human thought processes). Watson clearly demonstrated ethos and logos. Watson was able to employ an agglomeration of techniques over unstructured information. The system was personified in the press and was said to "not have much of a sense of humor" yet Watson necessarily employed interpretations of puns and other humor techniques in the continued successful translation of game cues, and thus, also demonstrated the employment of pathos in its victorious execution.

Figure 3: IBM's Watson competing against two Jeopardy World Champions

Technology and Definition of Self

Ramana Maharshi tells us that to query "Who am I?" is to travel through a portal to Awakening – the deepest form of self-discovery. Among other things, his question forces us to identify what we are *not*. The questions consider the possibility that technology is now stepping up to serve as another tool to shed insight on the Self. From our Facebook profile, to the "*selfie*" we take with our smartphone, technology is becoming both a window and a mirror to the Self, reflecting individual and societal mores, along with transparently presenting clues and remnants and of our daily lives, in the spirit of ethos, logos, and pathos.

Based on the fact that the technological evolution, to date, has occurred in less than one millionth the time of human evolution, examining algorithms and programs, avatars and robots, simulations and simulations of simulations, both from a humanist's point of view as well as a hands-on laboratory investigation is not just a luxury, but a necessity. This lightning speed of growth is forcing us to address what it means to be human – to identify those aspects of humanity that cannot be emulated by a machine.

Conclusion

We have seen that the embrace of technology to Aristotle's three precepts of persuasion can be accepted or rejected depending on the humans' intentions – as users, authors, students, and teachers, and how this infrastructure of ethos, logos and pathos can serve to improve our technology's ability to persuade. We have asked questions that pertain to the permanence and fate of data. By virtue of its lack of physicality, it is vulnerable to deletion – a modern book-burning -- devoid of flames, and smoke, and evidence. We have invited the question "What can we do to preserve our voices – even those with whom we do not agree?"

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