From: Joichi Ito [redacted]
Sent: Monday, January 12, 2015 12:07 PM
To: Jeffrey Epstein
Subject: Edge Question

BTW, here's the final version of the essay that I wrote for =rockman's edge question... inspired in part by our =onversations.

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THE EDGE QUESTION—2015
WHAT DO YOU THINK ABOUT MACHINES THAT THINK?

You can't think about thinking without thinking about thinking =bout something. —Seymour Papert

What do I think about machines that think? I guess it depends on what =hey're supposed to be thinking about. I am clearly in the camp =f people who believe that AI and machine learning will contribute =reatly to society. I also think that we'll find machines to be =xceedingly good at things that we're not -- things that =nvolve massive amounts of data, speed, accuracy, reliability, =bedience, computation, distributed networking and parallel processing.

The paradox is that at the same time we've developed machines =hat behave more and more like humans, we've developed educational =ystems that push children to think like computers and behave like =obots. It turns out that for our society to scale and grow at the speed =e now require, we need reliable, obedient, hardworking, physical and =omputational units. So we spend years converting sloppy, emotional, =andom, disobedient human beings into meat-based versions of robots. =uckily, mechanical and digital robots and computers will soon help =educe if not eliminate the need for people taught to behave like them.

We'll still need to overcome the fear and even disgust evoked =hen robot designs bring us closer and closer to the "uncanny =alley," in which robots and things demonstrate almost-human =ualities without quite reaching them. This is true for computer =nimation, zombies and even prosthetic hands. But we may be approaching =he valley from both ends. If you've ever modified your voice to =e understood by a voice-recognition system on the phone, you understand =ow, as humans, we can edge into the uncanny valley ourselves.

There are a number of theories about why we feel this revulsion, but I =hink it has something to with human beings feeling they're =pecial – a kind of existential ego. This may have monotheistic =oots. Right around the time Western factory workers were smashing =obots with sledge hammers, Japanese workers were putting hats on the =ame robots in factories and giving them names. On April 7, 2003, Astro =oy, the Japanese robot character, was registered as a resident of the =ity of Niiza, Saitama.

If these anecdotes tell us anything, it's that animist religions =ay have less trouble dealing with the idea that maybe we're not =eally in charge. If nature is a complex system in which all things �=93 humans, trees, stones, rivers and homes -- are all animated in some =ay and all have their own spirits, then maybe it's okay that =od doesn't really look like us or think like us or think that =e're really that special.

So perhaps one of the most useful aspects of being alive in the period =here we begin to ask this question is that it raises a larger question =bout the role of human consciousness. I think human beings are part of = massively complex system --

complex beyond our comprehension. Like the =nimate trees, stones, rivers and homes, maybe algorithms running on =omputers are just another part of this complex ecosystem.

As human beings we have evolved to have an ego and believe that there =uch a thing as a self, but mostly, that's a self-deception to =llow each human unit to work within the parameters of evolutionary =ynamics in a useful way. Perhaps the morality that emerges from it is a =elf-deception of sorts, as well. For all we know, we might just be =iving in a simulation where nothing really actually matters. It =oesn't mean we shouldn't have ethics and good taste. I =ust think we can exercise our sense of responsibility in being part of = complex and interconnected system without having to rely on an =rgument that "I am special." As machines become an increasingly =mportant part of these systems, their prominence will make human =rguments about being special increasingly fraught. Maybe that's = GOOD THING.

Perhaps what we think about machines that think doesn't really =atter – they will "think" and the system will =dapt. As with most complex systems, the outcome is mostly =npredictable. It is what it is and will be what it will be. Most of =hat we think is going to happen is probably hopelessly wrong and as we =now from climate change, knowing that something is happening and doing =omething about it often have little in common.

That might sound extremely negative and defeatist, but I'm =ctually quite optimistic. I believe that the systems are quite adaptive =nd resilient and that whatever happens, beauty, happiness and fun will =ersist. Hopefully, human beings will have a role. My guess is that they =ill.

It turns out that we don't make great robots, but we're =ery good at doing random and creative things that would be impossibly =omplex -- and probably a waste of resources -- to code into a machine. =deally, our educational system will evolve to more fully embrace our =niquely human strengths, rather than trying to shape us into =econd-rate machines. Human beings—though not necessarily our =urrent form of consciousness and the linear philosophy around it—=re quite good at transforming messiness and complexity into art, =ulture, and meaning. If we focus on what each of us is best at, I think =hat humans and machines will develop a wonderful yin-yang sort of =elationship, with humans feeding off of the efficiency of our =olid-state brethren, while they feed off of our messy, sloppy, =motional and creative bodies and brains.

We are descending not into chaos, as many believe, but into complexity. =t the same time that the Internet connects everything outside of us =nto a vast, seemingly unmanageable system, we find an almost infinite =mount of complexity as we dig deeper inside our own biology. Much as =e're convinced that our brains run the show, all while our =icrobiomes alter our drives, desires, and behaviors to support their =wn reproduction and evolution, it may never be clear who's in =harge—us, or our machines. But maybe we've done more =amage by believing that humans are special than we possibly could by =mbracing a more humble relationship with the other creatures, objects, =nd machines around us.

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