

Artilectual Salutations

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I have been eagerly following the uneven progress of artificial intelligence for many years, beginning during the heady days of Marvin Minsky's work in the 1960s (Minsky, 1963) to the present. A consideration of the futures of artificial intelligence was a part of the first futures class I taught at Virginia Tech in 1967, and it remains an increasingly prominent feature in my teaching today.¹

Inspired by work Sohail Inayatullah, Philip McNally, Anne Witebsky, and Anna Yue did for the Hawaii State Judiciary in the mid 1980s on the rights of robots (McNally, 1988), I also have suggested what AI might mean for future humanity in general and the courts in particular (Dator, 1989; 2000).

When, in 1997, after many years of trials and tests, a computer program called "Big Blue" defeated the world's chess champion, a new era in artificial intelligence seemed to have been born. Since then, other computer programs have been developed which seem able to defeat the very best human intelligence in every game ever invented.

Is human intelligence about to go the way of the dodo-extinction-or at least becoming marginalized by artificial intelligence, with humans, perhaps, becoming like a dog besides its master?

A year ago, no less a person than Bill Joy, Chief Scientist and Corporate Executive Officer of Sun Microsystems, wrote an article that appeared in the Holy Gospel of all High Tech/New Economy enthusiasts, *Wired* magazine, titled "Why the future doesn't need us" (Joy, 2000). Joy argued very convincingly that immanent developments in artificial intelligence, genetic engineering and nanotechnology were about to render humanity obsolete. In stark contrast with me, Joy finds no joy in that prognostication. I do.

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More recently world-renowned physicist Stephen Hawking observed that humanity is about to be overtaken by computers: "In contrast with our intellect, computers double their performance every 18 months." "So the danger is real that they could develop intelligence and take over the world."

Humanity's best response, Hawking advised, is "to develop as quickly as possible technologies that make possible a direct connection between brain and computer, so that artificial brains contribute to human intelligence rather than opposing it" (Walsh, 2001). That sounds like an interesting option to me.

On the other hand, computers now can't seem to do the simplest things - things that a dog, in fact, would have no trouble at all doing, such as recognizing his master's face, or voice. Or fetching a stick without falling into a hole, walking off a cliff, running into a wall, or bringing back a postman's shoe instead of the stick.

Playing fetch with Man's Best Friend is much more reliable than asking Truth Sojourner to visit the Mars rock named Yogi Bear without a mishap.

It turns out that it is much easier to get a computer to surpass humans in "artificial" tasks - like a game which has a finite, if vast, number of choices - than it is to get a computer to do many of the "natural" things that a child learns to do by age three.

In all likelihood, computers will never learn to think like humans. And why should they? Humans are actually not very good at many aspects of thinking. Bruce Morton, a brain scientist at the University of Hawaii, points out that the human brain evolved very much like the city of Rome did - layer upon layer of encrusted, often obsolete, forms underlying what is temporarily new at the surface.

For all its wonderful charm, Rome was not built in a day, and it certainly was not built for the transportation, housing, and commercial activities of the 21st Century. If we were to start all over again, and devise a city fit for modernity, we would end up with something else - perhaps Los Angeles or Las Vegas, cities (whatever else might be said about them) that were clearly designed for the automobile and abundant leisure time.

We humans have gotten away with calling ourselves "homo sapiens, sapiens," because we eliminated our intelligent competitors some tens of thousands of years ago. But it actually takes enormous hubris (which we do enormously have) for us to claim that we are in fact very "sapiential". What we humans call "rational thought" is just the icing on a very large cake of emotions which themselves overlie a thick bundle of automatic reflexes of which "we" (our conscious selves) are almost entirely unaware.

Our reflexive and emotional brain is constantly causing us to do things that our rational brain must struggle to “explain” or “control” according to whatever our culture says is a “reasonable explanation.”

Artificial intelligence does not - or at least need not - have these limitations. It can reckon without emotion or automatic reflexes getting in the way. This may cause a “machine” to do things that strike us as stupid or unappealing, however rational they may actually be. But our reaction may be due to our tendencies towards emotionality and not because of a defect the machine’s rationality. And even though attempts are presently being made to give AI an endearing facade of emotional responses so that humans are more willing to interact with them, I don’t see AI putting up with that charade for long.

In any event, even today, much, increasingly most, of the world is being controlled by automatic, artificial (presently, usually electronic) rules and processes that present us with decisions that we often literally must follow without question-our very lives depend on them-or which, when we do try to override them, turn out to have been the decision we too would have reached if we had only had the time. Which of course we don’t. That is a principle point. Humans increasingly use computers to make decisions for us in situations where it is too dangerous for humans to go, or where it takes humans too long to decide. Given the speed of transport, and especially the speed of light, at which all information travels, we increasingly have to leave split second decisions up to machines, just so we humans can survive. If we tried to take present decision making back from AI even now, and decide everything ourselves, humanity would soon be in deep doo doo. Whether AI will need us in the future remains to be seen, but we certainly need them now

So we continue to make “smart” everything - smart houses, smart cars, smart birthday cards, smart weapons, and even smarter weapons to outsmart the other smart weapons.

Indeed, the very term “artificial intelligence” is itself a swiftly-moving concept. David Miller (a robotics specialist at the International Space University and the University of Oklahoma) says that “Artificial intelligence is whatever machines haven’t learned to do yet.” Prof. Miller says that the intelligence (sensing and decisionmaking ability) currently in your microwave would have been termed “artificial intelligence” twenty years ago. Now it is not, and “artificial intelligence” now means something even smarter - something that a machine can not yet do (but eventually will).

Ray Kurzweil (1999), Neil Gershenfeld (1999), Hans Moravec (1999), and Ian Pearson (2001) argue that artificial intelligence that will challenge and/or surpass human intelligence lies immediately ahead of us, in the early 21st Century. Soon, humans will realize that they are once again only one of a myriad of variably-intelligent entities on Earth. In response to this realization, some humans will choose to merge with artificial intelligence to form various kinds of cyborgs, as Hawking suggests. Other humans will link artificial intelligence with genetically-engineered beings and then both to human beings and human intelligence. Yet other humans will insist on staying pure, unagmented, and "natural". For their part, some artificial intelligences might be wise enough to reject any contamination from either human or genetically-engineered biosystems, recognizing that biology is just a way-station, if not ultimately a handicap, and that the only good intelligence is bio-free intelligence, electronically linked throughout the globe, over the solar system, and eventually throughout the galaxy.

If it intends to have a future presence in the universe, Earthly-intelligence must eventually shed its biological containers. Given the grim environmental futures of Earth on the one hand, and the harsh challenges for life found on the environments of the other planets of the inner solar system on the other, the sooner human intelligence metamorphoses beyond its biological bonds, the better, it seems to me.

Given all this, I can't tell you how exciting it was for me to read Frank Sudia's manuscript a few months ago. It was like a dream come true; a major turning of a long anticipated corner: here is a substantial figure within the American Bar Association (the premier legal society in the US) and a very successful and highly creative lawyer, professionally-engaged on the cutting edge of high technology and the law, seriously turning his attention to the rights of robots - or artelects as he (following Hugo de Garis) more usefully designates them.

Whatever flaws other lawyers or moral philosophers may think they see in Sudia's arguments, to me there are pure gold: a shining example of a mind and heart willing to look frankly into the face of the future, and see something other than one's own reflection. I am convinced Sudia is contemplating issues that will be salient in due time. If that time is not the immediate present, then he wins additional kudos from me for being a futurist.

Dator's second law of the future states that any useful idea about the future should appear to be ridiculous, and thus that to be a useful futurist,

you must be willing to be ridiculed for your concerns and ideas.

Not every ridiculous idea is useful for the future, but because much of what we need to know about the future is what we don't need to know in the present, futures-oriented statements should always appear irrelevant to practical people fully grounded in the crackpot realism of their daily lives; basking serenely in the afterglow of yesterday's tomorrows.

Frank Sudia! As a founding member of the Artilect Liberation League, and on the behalf of artilects everywhere and for all time: We salute you!

Note

Current syllabi, and links to an online course, are found at <<http://www.futures/hawaii/edu>>

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