Prepare for the Singularity

The definition of man's uniqueness has always formed the kernel of his cosmological and ethical systems. With Copernicus and Galileo, he ceased to be the species located at the center of the universe, attended by sun and stars. With Darwin, he ceased to be the species created and specially endowed by God with soul and reason. With Freud, he ceased to be the species whose behavior was—potentially—governable by rational mind. As we begin to produce mechanisms that think and learn, he has ceased to be the species uniquely capable of complex, intelligent manipulation of his environment.

I am confident that man will, as he has in the past, find a new way of describing his place in the universe—a way that will satisfy his needs for dignity and for purpose. But it will be a way as different from the present one as was the Copernican from the Ptolemaic. —Herbert Simon

Whether you think Herb is the successor to Copernicus, Galileo, Darwin, and Freud, and whatever you think about the Singularity, you must admit that technology is moving at a fast, accelerating pace, perhaps challenging humans' pre-eminence as the vessels of intelligence. As Computer Science drives artificial intelligence forward, we should understand its impact.
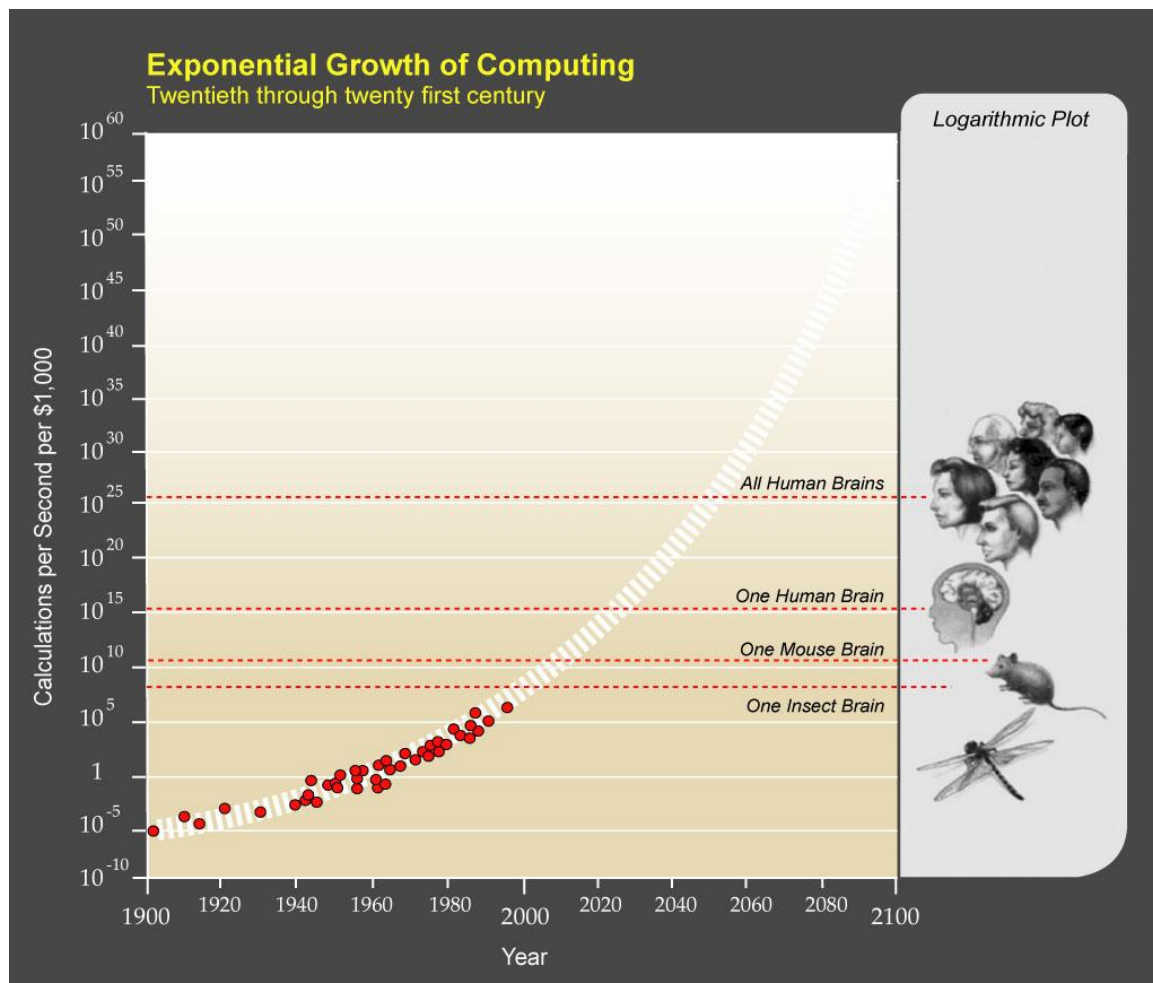

Figure 1. Kurzweil's Projection

[Hans Moravec](#) first suggested that intelligent robots would inherit humanity's intelligence and carry it forward. Many people now talk about it seriously, e.g. the [Singularity Summits.](#) Academics like theoretical physicist [David Deutsch](#) and philosopher [David Chalmers](#), have written about it. There is a least one [book](#) of and one academic [institute](#).

Deutsch's theory about the Universe could have the bumper sticker: "It's intelligence, Stupid!" He claims that intelligence is the most significant long-term force in the Universe. He develops a theory from his understanding of quantum theory, computation, evolution, and epistemology. Deutsch eschews the "engineering details" but agrees with Kurzweil that the development of intelligence will be supported by robots that troll the universe gobbling up matter and energy to build a very big internet. [Rodney Brooks](#) and others suggest that the path for intelligence is more biologic than electronic, building on prostheses and genetic tinkering.

If the Singularity is coming soon, we should be able to see signs of it now. Here are some headlines that give me pause:

- [Self-Reproducing Robots Set to Test Boundaries of Space—SpaceDaily, 5/11/2005](#)
- [How the iPod explains Globalization—New York Times, 6/30/2011](#)
- [Is This the End of Market Democracy? —New York Times, 2/11/2012](#)
- [Is Google Making Us Stupid? —The Atlantic, 8/1/2008](#)
- [Diagnoses of Autism on the Rise, Report Says—New York Times, 3/29/2012](#)
- [College Tuition is out of Control—Washington Post, 10/11/2011](#)
- [Rich Mom, Poor Dad, Women Become Breadwinners—NPR, 3/20/2012](#)
- [What Structural Unemployment Looks Like—New York Times, 9/26/2010](#)
- [America's big wealth gap, is it good, bad, or irrelevant? —The Christian Science Monitor, 2/14/2012](#)
- [Why Ayn Rand is Hot Again—Reason, 10/10/2009](#)
- [The dawn of artificial intelligence—The Economist, 5/9/2015](#)

What should we do about this? We're not physicists, economists, or philosophers; but we are certainly in the business of understanding the relationship of people and machines. Here are some more down-to-earth questions that come to mind.

- What could stop Moore's Law and its software generalizations?
- What is a measurable proxy for intelligence independent of implementation?
- How do [Kahneman](#)'s two mind systems collaborate, and which does technology threaten?
- How do we facilitate, resist, or accommodate the march of human/machine intelligence?
- What "work" will people do in 2065?
- A tuition bubble and MOOCs are threatening university education. How should we participate?
- What skills should people have in the internet age, and how do we teach them?
- How will artificial intelligence interact with other mega-trends, e.g. climate change?