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THE SINGULARITY

Introduction: Imagine a world so wild, so out there, so new, so over the top, that it becomes beyond comprehension. Forget thinking inside the parameters of nature, thinking outside the box will be completely needed when thinking about this topic; a topic that is taken straight out of the comic book, and on the pages of possible history. Imagine a world where humans lived with the presence of robots that were a superior race, or a world where innovations of a lifetime, happened every hour. This is the world we are approaching, and that time where this the complete transition happen from real to imaginative happens is called the Technogical Singularity.

Definition: The singularity is something that most people think as a word of physics or mathematics, which in most cases is correct because of its mathematical origin. (Institute 2012) The technological singularity though is one that many fear and experts see as a sight unknown. What it is actually is something less out of the real world and more of what we see in the Matrix. It is when technology has expanded and compounded upon itself to such an extent that it has reached the point of being able to be have a conscience and be like the human brain in the way it runs. (Kurzweil 2009) While people fear or deny this theory as much as they do extraterrestrial existence and an existence of an afterlife. There are immense amounts of facts that prove that the singularity is soon approaching.

To start, there has to be a definition on what a singularity is. A singularity is a point that is unknown because of its mass uncertainty and gravity of its measurements; basically saying that it is so extreme that it is almost impossible to see beyond that point without some big hints of skepticism. (Allen 2011) The term singularity is actually based off a math term where the

derivative at a point does not exist because it goes off towards infinity at an exponential rate, but yet the point itself still exists. In astrophysics it would be talking about black holes. A singularity is a point where matter becomes infinitely dense and possesses infinite volume and space and time become infinitely distorted. The uncertainty of both of those matters implies that a singularity is a point that is so out there, there is no room to explain how it will turn out. (Kurzweil 2009) This relates to the technological singularity as it is a point where machines surpasses human intelligence and thus creating a being or system that is more powerful than us. What will come of it is only be a matter of questioning, skepticism, and time.

Where it came from: The thought of a technological singularity actually originally was produced out of the mind of a science fiction writer by the name of Vernor Vinge. Vernor wrote about superhuman artificial intelligence in his books dating back to 1960s. At this point the thought of artificial intelligence being anywhere near where it is today would have been a laugh, an afterthought, almost a joke. (Grossman 2009) Being the first person to really use the term singularity though, he properly predicted the possibility of a full technological singularity and its utter consequences on human kind. He wrote later about what it really means for the human population in a more serious matter in a write up to NASA in 1993. (Vinge 1993) The article was later published in a scientific magazine and word spread quickly through the small intelligence community at the time about this idea of a singularity. I.J Good, a British mathematician also proposed a concept similar to this idea out of the science fiction book. He basically said that an unintelligent machine that can surpass the intellect of man would be the last invention man would ever create. Both these predictions were largely ignored through time until fairly recently, and their early research is now being credited. (Institute 2012)

Growth through time: Through time though the singularity has really been on much of the backburner compared to many other pressing issues in the world news today such as global climate change, nuclear war, collapsing economies, etc. (Newitz 2010) Yet starting in the 1990's as the Internet grew and technology really started to develop at a faster rate, the idea that the exponential growth of technology was going to soon be a problem started to enter the minds of some experts. Technology itself at the beginning of the 1990's was infant compared to what it is today a little more than 20 years later. The World Wide Web, cell phones, and PC's were just getting put on the market for the first time. Today all of these things seem ancient, archaic and seem like they were all created ages ago. The vast and swift change has caused a complete reversal in our philosophy of technology as our lives have become almost centered on it instead of it being an aspect of our lives. We are now almost dependent on all kinds of artificial intelligence like GPS, smart phones, Intel software, and even robotics that we have created to complete tasks like Watson created by IBM.

Emergence of Kurzweil: As time went on, more and more people started talking about the singularity and its daunting dramatics. One of the focal speakers and advocates of the singularity is a futurist by the name of Ray Kurzweil. (NPR Kaste 2010) He has done an enormous amount of research in the field of technological singularities and has written books, papers, and done several studies on the topic. He even has his own website where he tries to explain his theories to the mass public. Of course many of these theories are confusing, very dense, and hard to understand to say the least. He even wrote in his first paragraph of one of his papers "If you can understand this whole paper, I will pay you 9 trillion dollars". Kurzweil started studying technology at a young age and by age 17, on a television game show he showed that he could make a computer write piano music. No one realized the significance of his

accomplishments at the time. He went on to create software that could change print to speech in college along with many other technological breakthroughs and inventions; in all he holds 39 patents and 19 honorary doctrines. (Grossman 2011) His research in the 1980 was the research that he founded his singularity thoughts upon. At this time, technology was not that eminent, but he wanted to be able to track technological progress at the time. So he tried to match up his findings with a proven law at the time called Moore's Law, which stated that the number of transistors you can put on a microchip doubles about every two years. Surprisingly, his 'rule of thumb' kind of law turned out to be matching Kutzweil's numbers. (Kurzweil 2001)

What will really happen?! The technological singularity has been called "the rapture of the nerds", as the intelligence community that is fairly tight knit has gathered closely around this topic and done its best to raise awareness and money supporting research. An NPR interview for the program 'All Things Considered' explored this sort of secret fear that the community has about the singularity and how AI (artificial intelligence) has grown at such a fast rate that it will soon become more powerful then the human brain. (NPR Kaste 2010) By saying that, they mean that it can find out what is wrong with it, and fix it and keep correcting itself at extremely speedy rates that humans will not be able to keep up with; thus possibly creating a whole new race of 'superhuman beings'. Basically not only would technology would be exploding in intelligence at a rate unimaginable, but technology would be creating technology at an unimaginable rate. This idea is the basis of the singularity because we do not know what will happen after that, even though many have thought of this as ridiculous, over exaggerated, and even cultish. (Zorpetter 2008) Paul Allen, the co-founder of Microsoft writes in the Technology Review that many findings by the expert researchers are valid, but not completely accurate. As he agrees that eventually there might be a point where technology excels past human intelligence but not at the

rate that Kurzweil predicted through his 'Law of Accelerating Returns' that he is so famous and at the same time infamous for. (Kurzweil 2001) His retorts too many of the ideas coming from this singularity scare are noteworthy. "Without having a scientifically deep understanding of cognition, we can't create the software that could spark the singularity. Rather than the ever-accelerating advancement predicted by Kurzweil, we believe that progress toward this understanding is fundamentally slowed by the complexity brake." Thus saying that we barely know completely how our own human brain works. The more we discover about it, the more we discover the possibilities of research about the makeup of our own intelligence make-up. The complexity brake is the thing that halts the progress of the singularity, or slows its progression. (Allen 2011)

There have been many ideas and concepts on how life would be like after the singularity, which many people range from occurring 35-50 years from now. Some people think that man will align themselves with the superhuman intelligent beings and harness its power to extend our intellectual abilities. (Kayo 2010) Others think that we will clash with the new cyborgs and in the end be annihilated from this Earth because of it. No matter what ideas that researches can propose, the idea of a new world era is so preposterous that it is beyond human thought. (Vinge 1993)

What people think are doing, and what I think: That is really why this topic is so interesting, because it jumps the boundary of the possibly, and the impossible. The boundary between what is science fiction, what is pseudo science, and what is real scientific research. Many people feel that the idea of a technological breakthrough that large is just impossible. (Newitz 2010) Even though there is a good amount of data to prove to the contrary. The vast majority of people are not willing to accept the fact that the possible 'end of the known world' is

coming up so fast. Many companies centered around intelligence like NASA, IBM, and GE are more embracing the idea of the singularity as they are sponsoring the top research. Also many colleges and universities are leading research and funding research on the impending singularity such as University of California-Berkley and Stanford University. (NPR Kaste 2011) I realize that this should be an expository paper and opinionated arguments might seem like a waste of lines. But I feel that as a human, I am definitely entitled to an opinion on the way that our destiny as a race is being handled.

Conclusion: If the singularity is truly in existence and we cannot do much to halt the progress, I feel that we should embrace it as a new beginning. As a person though who is not extremely technologically sound as other people, I just heard about this radical scientific matter just this year. So I feel that the first thing that scientists and futurists should do if they truly believe that singularity is more than just a hoax of fear and wonder, is to educate the commoners. This is obviously implying that 'dumbing' down the idea of it, so even a normal person can understand it completely. Who is it going to affect? How is it going to change the way we live? The world will have to stand by as science and technology changes from the backburner to the forefront.

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