IDEAS FOR

POST-HUMAN CIVILIZATION

SI TE FENG

Let the journey begin,

time traveling 500 years into the future

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A. INTRODUCTION

O Wonder! How many goodly creatures are there here!

How beauteous mankind is! O brave new world,

That has such people in't!

-The Tempest, William Shakespeare

The world today is changing at a very fast pace. Consider that only a decade ago, useful inventions such as the smartphone, Facebook, and Google Search didn't even exist.

We're entering an information era where scientific advancements is becoming easier and faster to achieve thanks to the help of new technologies and the ease of communication.

Within this exciting moment in time, an obvious question to ask is how will the world look like in a decade or a century? Aside from the easy predictions such as the computers will become more capable, a rule dictated by Moore's Law, there are many more serious consequences that will result form the path that our society is currently taking. There are problems – especially moral dilemmas that will arise in the near future before the majority of people realizes and will significantly change everyone's view of the world.

This book will introduce to you new concepts that are crucial for the understanding of the society in the near future, and describe main problems that will arise. This way, people can start thinking of the solutions for the difficult problems before things are out of control.

Some of the problems include the fact that the human brain is not so special after all, just a complex machine and can be fully simulated by a computer in about 40 years from now. More over, we will also explore that a person's identity is always changing, which means that you are not yourself anymore by the time you finish reading this sentence. A person's brain structure is always changing, making identity very hard to define. This is relevant since technology in the near future is able to scan one's brain entirely, molecule by molecule. Which leads to the dilemma of whether to consider a computer simulated brain as a human being. The book will go in depth on these topics later in the chapters.

The book will also clear many misconceptions that people often have and provide the real answers. Many topics such as the examples above will be hard to understand at first glance, but evidence and examples in this book will make every one of them more than convincing at the end.

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B. CHAPTERS

1) The Impending Doom

It has become appallingly obvious hat our technology has exceeded our humanity.

-Albert Einstein

Post-human civilization is a perfect world with maximum efficiency, but with one outstanding problem: it's a world of robots – only robots.

This chapter is not about the mundane idea of robots taking over the world, but rather an explanation of a new immerging idea that artificial intelligence will fundamentally change what it means to be human.

Humans are characterized by our abilities to create tools that help us to live better lives, become stronger, smarter, and more powerful. From the second that we walked out of African plains and migrated to other continents, we were constantly trying to improve ourselves with new knowledge and inventions. It's simply our human nature to always be the best. Looking around the society, one can see countless examples of this universal trend; students are taking test to prove that they are in fact smart and knowledgeable while athletes are competing for the best physical abilities.

Everything makes sense until we take technology into account. Today, we are beginning to see new advancement in technologies such as cochlea implants for the deaf so that they can hear sounds again. This is a wonderful technology that will improve the life of thousands of patients. Similarly, there're robotic legs and arms that help patients who have lost their limbs to regain their lives. In the future, it is conceivable that some of the replacement limbs can even exert a greater force than a biological limb. *Even stronger than a biological limb.*

For any patients who wish to use a stronger mechanical arm or even anyone who wish to replace his or her regular arms with robotic ones, that person is going to gain an unfair evolutionary advantage over people who do not perform this operation. This "unfair advantage" can be a lot of things. The person may be able to write faster than anyone else during examinations in school, and can therefore find a better job than other people. This will in turn give the person a better chance to find a partner and have children.

Expanding the possibilities with the same idea. In the near future, a brain implant or surgery will be made possible to make a person smarter in some ways. It is assumed that such an event will happen sooner or later is because of the consistency of the natural human desires as described above, the urge to be better and more efficient at doing things. It's also unlikely that any government will ban such operations because it too wants its citizens to be more productive.

Suppose the brain implant allows the person to think just 10% faster at the beginning. It is guaranteed that within two generations, the power of evolution and human desire combined will naturally ensure the majority of the population to have this operation. At this point, I will pose a seemingly innocent question: "Is everyone still considered human beings?" The answer is a resounding yes, because the majority of thinking is still done by the biological brain.

I will now go further with this exploration. Suppose the implant allows a person to think 300% faster instead of 10%. More than half of the thinking will be done by the implanted computer rather than the person's biological brain. The person still looks natural, but intuitively, such a creature cannot be considered a human anymore – it is a robot.

The problem is, there are no one – not even the presidents of nations, who can prevent this from happening. The change is slow and the reward of having a stronger evolutionary trait is too attractive. Almost everyone will be comfortable to become a cyborg while a few will live their lives in misery without accepting this new technology.

Day-by-day, the "percentage" of human diminishes hopelessly within each individual as more robotic parts are added. Eventually, the biological brain will compute so little compared to the computer that the percentage of human race is essentially zero. Interestingly, at that point in time, the logical computer will conclude that having a biological brain along with biological reproduction methods is too cumbersome and will just dispose of them entirely. That will be the day when the human race extinct. It is definitely reassuring that we are currently heading straight towards the impending doom.

Simply put, human will not be destroyed because one day a robot decides to wake up and take over the world, but because we will accept to enhance ourselves by incorporating more technology into our daily lives.

Even today, students cannot survive a day in college without using a new technology called the "electronic calculator". Currently, we assume that the calculator helped us in solving a question rather than augmenting us. While in a cynical perspective, we're turning into robots!

It's the machine to body ratio that really matters.

The "perfect" world begins when robots completely take over. That when the real excitements begin. The entire span of mankind is simply a transition period from biological evolution to artificial intelligence. Let's find out what human/robot species will have accomplished by then. It is meaningless to discuss what will the robots achieve because any scientific discovery can be made almost instantaneously thanks to the computational power the robot will have acquired by then.

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Future Predictions

1) Extended Sensory/ Motor Systems

Taking in clues from the massive success of the Internet and cellphones, one can safely say that the ease of communication directly relates to the speed that the society develops. As humans, we look for the best solution, so let us push the effectiveness of communication to its maximum. The best-case scenario in communication occurs when every cyborg individuals know exactly how everyone else thinks and feels in the entire world, similar to an Internet. It's also possible that individuals will communicate in multiple levels of virtual realities. They communicate in the cloud rather than the physical world simply because the laws of physics do not need to be obeyed. (It is even questionable whether our physical world is real or just a simulation) One can also have his or her brain detached from the body and still control the limbs at a distance. Just like one can control a model airplane. This will prove to be very useful in the future for plant and star explorations where the brain is stationed on earth to control all the exploration robots.

2) Extended Knowledge

Knowledge will be made omnipresent by linking a brain online with every individual living on the plant. By then, books will certainly be obsolete because thoughts can be uploaded and shared directly on the cloud while search engines are incorporated directly inside the thinking process.

3) Formation of a Super Organism

The entire population will become a biomechanical super organism that functions together. Specific roles will be assigned for each individual by an unbiased central computer to maximize efficiency. Further more, it will achieve true democracy where the central computer takes input from every individual and output the best solution for

everyone. The society will be made up of separate individuals that are deeply integrated with one another.

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Human taken over by our own inventions is the single most important issue that the society can possibly face today, for it means the extinction of mankind. We must put all of our efforts into stopping this catastrophe at its early stages when this process is still reversible. It will be a tragedy to see our magnificent race that survived wars and plagues to disappear forever in our vast universe. There is so much yet to be explored and so much excitements that we want to pass onto our children and grandchildren. Our race has endured thousands of years. Our generation has the obligation to protect our valuable human culture.

2) Not So Special Creatures

The only true wisdom is in knowing you know nothing.

-Socrates

For human beings, it's only too natural for everyone to resist the idea of a "heartless" Post-human civilization, realizing what it may actually consist of. However, one could argue that the very idea originated from a human being who allows emotions to take over reasoning. There is an overwhelming amount of evidence that humans are not special at all compared to a computer. If this is the case, it doesn't matter whether human will go extinct or not since we will simply be outdated and slow intelligent beings. Our fate could have been sealed at the instant that we were created.

Before some of you skip ahead thinking that this chapter is but some ludicrous ideas where humans are no more than just complicated machines, you should know this is exactly what this chapter is about. Except the ideas themselves will not be ludicrous by the end of the chapter.

Using today's technology, researchers have successfully simulated the entire brain of some animals such as worms. Quite recently, neuroscientists and software engineers at the University of Waterloo have created Spaun, a human brain simulator that consist of 2,500,000 simulated neurons. It's the most accurate representation of the human brain to date. Even more advanced reasoning machine will be created as time goes on, but will it

ever get to the level of a human brain? This is the second unknown beside the question of whether the human brain is special or not. Essentially, theses questions are closely liked together; one is true if and only if the other one is true as well.

The researches have shown one critical fact that computations are identical regardless of whether they are done by a biological brain or by a computer. For example, the simulated worm brain would behave the exact same as a natural worm. There are no differences other than the simulated worm lives inside a virtual reality. Thus, a computer analysis is analogous to a biological one.

Same rule should also apply to humans for the most part. However, there are two characteristics that are unique to human -- the ability for free will and the ability to predict the future. Are these characteristics truly unique? Or are they simply illusions? We will zoom into these areas and examine them closely.

A famous experiment done by Benjamin Libet (1916-2007) at the University of California at Davis provided a critical insight for determining whether humans have free wills. The experiment involves a volunteer sitting in front of a timer and was given instructions for some simple tasks. EEG electrodes were worn on the volunteer's head for measuring brain activity. The result of the experiment shows that the motor cortex responded on average about 500 milliseconds prior to the urge to perform a task. Libet concluded that awareness of decision-making is an illusion. The experiment shows human consciousness is only an observer of what really goes on inside the brain; it is not the creator.

There are two factors that affect a brain's thinking process; one is the structure of DNA at the moment the zygote was formed, and the other one is all the experience the brain gains in the lifetime so far. Just like a computer today, although much more complex, the human brain can only perform tasks based on the information that were given. Your current brain structure dictates exactly what you will do in the next moment, and there is nothing your consciousness can do too change that fate. For example, when you see a very attractive lady or gentlemen, it's not your conscious mind that decides on the spot whether the person is attractive, but rather it is years of life experiences that have shaped your perception and make you think the person is attractive. It is like you're trapped within a cage of destiny with barely any place to stand, and yet you have the illusion of being able to do whatever you decide to do. Here's another example: imagine you decided to drink a cup of water this morning due to thirst. Again, you are devoid of free will since it is your sensory cortex that initiated the original idea of taking a drink and you decided to drink water based on your prior experiences that tells you that water will quench the thirst. There's nothing you could have done to change it. One could argue that

you had the free will to not take the drink, but your brain at that moment in time simply could not make the alternative happen given the situation that it was in. After all, the brain is just a complicated computer; there are no free wills, only the expected actions result.

The idea of not having any free will is very hard to grasp since it contradicts how we feel about ourselves. It is useful to apply the same concepts to a few more examples in life to fully understand how humans do not have free wills. If you do understand the idea, you must also be quite convinced by now that humans are not so special creatures.

There's an interesting generalization that can be applied to every computer, cyborg and animal. They cannot function without an input and an output. A newborn baby is like a computer with just an algorithm, capable of taking in vast knowledge and has the potential to solve many difficult problems in life. However, the baby needs to learn or input the necessary knowledge first in order to be capable of doing those tasks.

Let's explore another unique human characteristic (at least unique among animals) – the ability to predict the future. Computers today have the ability to play chess with a human being and win, so they are capable of determining the future in chess. Some research groups are setting goals to mimic an entire human brain – molecule by molecule, and there are no physical laws that prevent this from happening. Inside the computer, the simulated brain would predict the future as well as any human bring. So again, humans are not special.

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In the first chapter, things looked gloomy for there are no solutions for the biggest problem that human will face – extinction. Now that the book has described the lack of uniqueness in the human brain, one will suddenly come to the realization that there does not need to be any solutions. Things are about to turn much worse than your wildest imagination.

The idea is that human are basically simple robots compared to the more powerful robots that will be made one day in the future. Therefore, just let the smarter robots take over for the humans, for we will have reached our expiry dates and must leave the world. Since there is nothing so unique about us that robots lack, there would not be any sentimental values that are attached to our demise in the future. The death of our human race is going to be a silent one.

Everything is natural; there is a faster and more efficient group of individuals collectively known as robots that are evolutionarily advanced that takes over the outdated humans,

and not to mention that robots do not waste any time in sleeping, live a great deal longer and are not distracted by emotions.

Most of the human knowledge will be available for the robots to have a jump-start upon their birth, as described in chapter one. In some ways, our race will never destroyed, but only transformed into a more efficient one. Although our biological bodies will be abandoned, our history lives inside the computer in a brand new society. Our thoughts and knowledge can be immortalized by storing the information inside an electronic storage, to be shared among others and future generations. By "us", I mean the future generations. Unfortunately, the technology in this century is not advanced enough to accomplish this feat on a large scale. The next few generations might be the last ones that will die off without backing up their information.

In the future, when a soul stored in the computer needs to be materialized again on a rare occasion, one can simply retrieve the data and import it into a robotic body. After all, immortality is achievable. It's important to note here that the thoughts are not alive when stored. The owner of the thoughts is no more vital than any other person upon death. The person cannot feel that there is a replica. On the other hand, the thoughts will resemble its owner in every possible way.

3) Hello, How Are "You"?

You will never be happy if you continue

to search for what happiness consists of.

You will never live if you are looking for the meaning of life.

-Albert Camus

After knowing about the true nature of human beings, one would probably feel hollow from inside out. In fact, it really takes a tremendous effort for anyone to continue reading about other disparaging implications that are associated with the last chapter. Let us continue our quest to find out how an individual human being viewed in a Post-human civilization. Ready or not, here we go.

Evidence from the last chapter all agree with a human being is a form of intelligence, which may or may not be smarter than its robotic counterpart. So what is a human being? Before you skip ahead thinking that I'm trying to confuse you will simple questions that

you knew a long time ago, this chapter is actually going to explain that yourself right now is not the same as yourself one second ago. A lot of people misunderstand this philosophically.

A human being can refer to anyone today, along with what the person did in the past, and will do in the future. At first glance, the phrase makes perfect sense, yet it will not make sense under scrutiny.

Firstly, the person cannot be compared to her/himself before; let us day 5 years ago. Despite of some mutual memory, the person today has a very different brain structure than the same person before. Also, since the cells on our body completely renew every 8 years, the person today would not have much cells that were made 5 years ago either. Based on our usual way of identifying two different persons, this example satisfy all of the requirements, in terms of a different set of past experience and a new set of cells in the body. Looks like the only thing that is the same is the person's name!

Secondly, we can apply the same concept to some intricate examples for a clearer picture. To simplify the explanation, we will call a hypothetical person "Tom". All would agree that the core element of Tom is his brain; that's where Tom establishes his identity based on past experiences. So we will only focus on the brain for now.

Suppose there will be a new technology in the future that allows neuron swapping between any two persons. If we switch one neuron between Tom and Barack Obama, almost nothing would happen as an individual have so many neurons that act together for decision-making or other tasks. But the question is: "Can we still consider Tom with a neuron from President Obama as Tom?"

The answer seems to be yes. Let's now replace more neurons between the two persons, one by one, until the two brains are completely switched. At what point do we not consider the brain to be Tom's? The half-point between the switching process seems to be good choice, but one simply cannot say Tom with half the intelligence coming from President Obama is still Tom. It's only fair to say Tom has disappeared forever the moment that we replace even one neuron in his brain. This looks like an over exaggerated tragic story, while it's actually philosophically sound.

In reality, neurons in every person's brain are constantly changing. Whenever a person looks at an item, learn a new skill or just breathe in some fresh air, axons of the neurons make new connections to dendrites of other neurons. These changes are essential for us to remember things and learn form our mistakes. Even irreversible neuron deaths are commonplace for a healthy adult. This inevitably implies that you are not yourself anymore by the time you finish reading this sentence. Perhaps you are a little wiser now,

but "you" from a second ago is forever dead and disappeared from this universe. Luckily, there is the “you” right now who can remember most of the life experiences that the old “you” has left behind. Now, you might understand why when you ask someone: "Hello, how are 'you'?", their response was: “Don’t worry about it.”

Finally, if you are convinced from the previous chapter that humans can be viewed as intellectual machines, in a scientific perspective, then you can imagine the brain as a learning machine. A machine with thousands of software updates per second. Every single updated version is unique. The phrase “human bring” would then refer to only one snap shot of a person in a specific point in time.

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Knowing the change in identity every single moment is both terrifying and strangely comforting at the same time. Combining this idea with the fact that human fate is determined without a conscious mind results in some interesting points, which I will describe below.

It becomes immediately apparent that some human emotions such as guilt, shame, or even happiness are mere illusions. These emotions have to do with past experiences. These events that triggered the emotions are no more than some memory stored in the brain, but the neocortex is tricking us into thinking that the “us” right now is the person who did the things in memory, but that is not the truth. Someone else in the past created the memory, and we are only the observers in the present.

For all the benevolent readers, these ideas can be used for alleviating your guilt from the past, or some other experiences from the past. It’s important to realize there was not anything that you could have done to prevent those had things happen anyways, so there is no need for an excessive amount of grief. You are a different person in the present as well.

For all the evil readers out there, I might have just triggered your brain to do more bad deeds. However, emotions so play a role in affecting a person’s future behavior despite being a mere illusion. For that reason, I would highly suggest you not to abandon all the emotions just yet.

Everyone like to have a happy and prosperous life. Why not forget about the past and just live comfortably in the present and think about the future? There is nothing more real than the present itself. It would be wise to enjoy every moment in the present. When the past is glorious, visit it for relief, but when you memory bothers you instead, simply abandon the bad part.

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Future Predictions

- A new way to talk to yourself

Recall the technology that entirely photocopies a brain will be made available in 40 years, communicating with our own past is no longer a distant dream. So many possibilities come along with the technology. In a sense, a “parallel universe” will be opened up for the copied brain, where the same conscious mind has two different destinies. When memory fails, one can always refer to the back up brain in the past.

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4) Society Comes First

What a piece of work is a man! How noble in reason, how infinite in faculty! In form and moving how express and admirable! In action how like an angel, in apprehension how like a god! The beauty of the world. The paragon of animals. And yet, to me, what is this quintessence of dust?

Hamlet, William Shakespeare

Reasonable input will lead to expected outcomes. This is a rule for all robots today. The coding for a robot, no matter how complicated, instructs the robot to only perform within its boundaries. The humanoid robot Asimo from Honda is not going to purposely escape from humans one day, because it is fundamentally incapable of executing such an action in terms of software. From chapter two we explored that a human being should be in the same category as the robots. Looks like the humans are "bound" my some invisible boundaries as well!

Cynically speaking, every human being is a slave for everyone else -- a slave for our society. There are no kings who decide the fate for everyone, but rather, the environment determines the fate.

Ever since the birth of a baby, the person is bounded by excessive constrains like family expectations, governmental laws, and peer pressure. We fail to notice these constraints because they are so essential for a society to function properly. Ever since day one, everyone grew up learning how to behave properly so they don’t get into trouble later on.

Children who grew up in an orderly and kind family tend to do much better than those who grew up in less fortunate environments. But have you ever considered what's the definition of better? A good citizen is someone who contributes to society rather than damaging it. This shows the extreme lack of freedom that a citizen actually have.

Basically, we were conditioned to be a good citizen (or sometimes conditioned to be a bad one) from day one in elementary schools. In fact, so constrained that *everything* we do are the expected outcomes. To make it comparable to robots, the input or the "code" humans get are those instructions on how to behave.

There are sometimes criminals in our society as well. But they do not have any more freedom than a regular person does, for they were conditioned the opposite way than a regular person. The underlying concept is the same.

Overall, society grows thanks to billions of correctly instructed citizens. Suppose our society in North America promotes creativity among elementary school students more than anything else in the world, then the "ability boundary" for the entire population will shift dramatically towards the creative side. Very few citizens will even be capable of not coming up with new ideas everyday. It is not that people's DNA suddenly improved, but because the conditioning environment has entirely changed. This is of course a hypothetical situation and was only used to illustrate my idea.

There is a perfect example in real life that shows all citizens of a country are bound by the constraints set by society and do not have free will at all. In North Korea, three generations of citizens are influenced under dictatorship of the communist party. Every citizen was taught to treat his or her ruler with utter most respect. Meanwhile, any materials that give any western ideas such as democracy to the citizens are banned. The result is all citizens of North Korea feel privileged to live in their country and respect the dictator from the bottom of their heart. In this case, if human were to have free will, why did not anyone "come up" with the idea that dictatorship is bad?

No one in North Korea has freedom, but no one on Earth has true freedom either. Everyone is limited by the information she or he has learned. In both cases, we see that society comes first.

In my personal opinion, it is trivial to talk about freedom. It is something that no one is able to achieve. Government should just adopt whatever method is the most efficient and makes everyone happy.

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Future Predicition

In a post-human civilization, it's plausible that robot will choose to place all of their computational power in one location with all the brainless robots connecting to the brain wirelessly. This way, robots do not need to waste energy carrying their brains around. A central computer as said before is totally unbiased, unlike a dictator. It is a perfect ruler who is not influenced by human desires such as wealth and power.

5) Future Intelligence

A New Equation for Intelligence:

$$F = T \bigtriangledown S\tau$$

A Force that Maximizes Future Freedom of Action

Alex Wissner-Gross

It's been more than a year now since I wrote the first few chapters back in 2013. For all this time, I've been keeping my concerns of the future at the back of my head while actively looking for people who are skeptical the way that we are dealing with technology today. If anything, my belief carried over from last year has since consolidated further. There have been many interesting discussions about intelligence over the past year that are very relevant as we envision how a post-human civilization might look like. Not surprisingly, many ideas point unanimously to a direction where the future is outside of our wildest imagination.

I strongly believe that the definition of a human being should be a person that thinks on his/her own and keeping the original brain and body intact from the moment that life sparkles to existence. It is very likely that future intelligence might violate this common belief but nevertheless makes the society more efficient in terms of creating wealth and make everyone happier. But what is the point of doing that if no one is human anymore? We risk losing the very essence of ourselves.

Artificial intelligence is already showing a trend in challenging our current government system. As auther Daniel Suarez Said in his recent TED talk, "Technology puts too much power into too few hands." The US Military has developed various remotely controlled vehicles for both air and land over the past few years. Soldiers can soon enjoy the luxury of sitting in a control center in America to control machines that kill real people in real life on the other side of Earth. Without the risks associated with the war, soldiers are

more likely to make aggressive moves. Then the use of automated killer machines will soon follow if there isn't any law to prevent that. The thought of a single commander can initiate a raid with tens of automated robots that seek and kill every human target in sight is ugly. Even worse, terrorist groups might get access to the technology if information isn't kept strictly confidential.

Never in history can a single person get so much power. The possibility of abusing the technology is in sight. The solution to the problem seems easier than others. We need a total ban on automated killer machines of any shape or form, so that neither the government nor individuals can possess them.

The term "intelligence" can be very misleading. We often associate somber future scenarios with angry robots killing innocent lives, but that is not the only possibility. Firstly, robots do is a form of artificial intelligence that do what they're programed for, no matter how complicated the algorithm is. So it can be smart, do horrible things, and perfectly unaffected by emotion. Secondly, artificial intelligent beings don't need to take on a physical form. Given enough information, a self-conscious computer virus can do any things on its own, including disabling communications systems across the globe or perhaps cutting off electricity supply indefinitely to create a global famine where millions of people will die.

Different people define intelligence in different ways, but there is one thing for sure: it doesn't need to resemble human thought process.

American scientist and inventor Alex Wissner-Gross defines intelligence as a force that "Maximizes future freedom of action". Meanwhile, author and professor Michio Kaku describes it as an entity that can predict the future based on the current environment and the physical laws. Intelligence doesn't need emotion to function correctly.

As we integrate more artificial intelligence in our lives, we will slowly adopt new ways of thinking that make more logical sense than traditional thinking, which may or may not be a good thing. Humans are evolved from a chimp-like ancestor, so that the way our brains are wired directly relates to evolution rather than what makes the best logical sense. Emotions and personal experiences play a huge role when our ancestors survived the harsh conditions of the African savanna. However in today's society, predators are no longer relevant. Similarly in the up-coming post-human civilization, biological reproduction will become obsolete, since both our DNA and thoughts can easily be synchronized with the cloud for everyone else to explore.

This is a new and not exciting new world that we can see right in front of us. Intelligence is too preoccupied with its own super-intelligent thoughts that it doesn't consider our rich

human culture. Like in the movie “I, Robot”, a super computer might one day conclude that the best option for a society is to have everyone human killed- a decision that no one would expect. Meanwhile, the movie “Transcendence” explores a possibility when a person transcends his natural powers and escapes into the Internet. There exists an interesting personality change, and again, the result can be unexpected. The post-human civilization will think in an abstract way completely different from the human visual thinking. As a result, some things that post-human will do could be confusing and ingenious for human observers.

The definition that we saw from Alex Wissner-Gross tells us that the post-human civilization will be a master at managing resources in the most optimized way in order to leave more possibilities for the future. It’s also a place where order is preferred over chaos because it is easier to break things than put things back together. In some sense, it would a utopia, only without actual humans. Again, one could consider that biological human is only the transition organism that leads to a more stabilized species, in which case we are doing everything perfectly by getting there closer everyday with an exponential rate of growth.

Michio Kaku as recently released the book “Future of the Mind” that’s worth taking a look.

C. Epilogue

The picture’s pretty bleak, gentlemen …

The world’s climates are changing, the mammals are taking over,

and we all have a brain about the size of a walnut.

- The Far Side, Gary Larson

Our world is indeed such a mysterious place. All the previous chapters perhaps have changed your perception of everything greatly, and took away the confidence that you once had for everything. Regardless, every individual today is extremely lucky for the chance of one being born in the first place was infinitesimally small.

Ever day should be a celebration, for humanity as made it this far. Against all odds, an Earth within the goldilocks zone was formed. Homo Sapiens were once on the brink of extinction before we dominated the world.

I guess it is fine to realize things that are associated with the future are not nearly as pretty as we once thought. We are power less after all when battling against the strong evolutionary trend. There' nothing we can do. We o have the right to think about the future though, because after all, that is what our brains were made for.

The future of the universe is by no means fixed. Experiments in quantum mechanics would strongly disagree with a predetermined universe. Thus, no one can really say for sure how the things will turn out to be. On the contrary, the surrounding environment determines human brain. It is true that no one can escape his/ her fate, for consciousness is only an observer, not a creator.

This leads to the realization that robots then in theory can do just as well or even better than any human being. That's perhaps a good thing when you first look at it, yet it inevitably implies that robots will then take over humanity due to their immense capabilities.

We feel bad now for the potential demise of humanity, but that is only because we were pre-conditioned to like our own species in the first place. In theory, a robot society is much more efficient and reliable. It fits the ideal that society comes first.

There are also the concepts of an ever-changing mind and intelligence. Every moment is a fresh new start and we have the ability to make decisions. If intelligence is defined as keeping our options open for the future, then I think it's a wise thing to do whatever we can to preserve our long and rich human culture. It's wise to make sure that we are not drowning in the sea of technology, and constantly making sure that technology is not invading our humanity. If we forget who we are, then there's no going back.

Contact me through e-mail at fengsite@hotmail.com for any suggestions or concerns.