In our society, computer intelligence is needed for business to survive and to maintain customer loyalty. The average Joe and his family are relying on the suggestion to use their hard money on usage goods and tasty food. In twenty years, business insight is all about data usage to understand our consumption. We can see our psychic based on usage on social media. Shopping on the web can be rewarding, but companies are collecting your shopping habit to build a profile. Using some college-level statistics and some programming to predict your next purchase. First, previous purchase info is stored in the SQL-style database. Second, a statistician has to look at objective for the data. The person has to set up formulas for programmers to harvest the data. A group of researcher try it and found it is very accurate to predict customers purchase. It is a very neat tech, but it raises privacy concern. Do you want big retail to control your purchase? Is this a plot to remove individuality? Can math overpower our personality? Sometimes, the result is so incorrect. Most people would take suggestion not so seriously.

Facebook survive as a company by selling sponsor post. To find a right audience, every action that you make records as a numerical score. To have sponsor post on the FB main page, FB find the most numerical score in your profile. However, Facebook is not so accurate because the human has the complex personality. For example, a straight guy may see LGBT ads because they like a couple of LGBT groups. A software developer will see sponsor post about development tools. An artist can use those tools to ask people personal interests and find hobbies and activities related to his response.

Twitter is a barometer of states' mood. Every tweet from people can tell their state of mind. We can write a parser from those tweets, and we can predict mental health in America. If we have vetted a person for a critical position, we can use Twitter and Facebook to examine

psychological information. Law enforcement and a family physician can also use the information to improve the health of the patient.

Now, we have put blockchain in AI. Amazon can use blockchain to build the scale of the system. They need to distributable, expandable and reliable system to operate. Blockchain allows Amazon to multiple data points to serve the customer better. and Blockchain allows Amazon to understand Whole Foods operation and integrate into their ecosystem. Blockchain would make the social networking work even better. Facebook can improve AI very quickly and further make sure that your posting will be used to promote more sponsor in Facebook or Messenger System.

Blockchain has many pros, the fact that data can be stored on it is a huge one. A notable example is in the very beginnings of Bitcoin, the genesis block. What's interesting about this specific block is that it doesn't reference any other block, because there were not any blocks to reference, and so it has a lot of zero bytes. All blocks have a special section called the coinbase, which is the area that is capable of storing the actual data. Blockchain isn't only present in Bitcoin, though; Ethereum is another notable example, with smart contracts that can execute any input code for a small fee. This allows for elaborate plans and security check systems to be put in place. The fact that those lines of code cannot be interfered with is also amazing.

Coding isn't the only pro with cryptocurrency, however; the blockchain can also support transfer of funds, which is what most people are familiar with. Funds can be transferred using blocks, which are mined. They also have a set difficulty to control blocktime, and with a low enough difficulty, funds can be transferred almost instantaneously. The blocks also create a 'confirmation' system that makes sure double-spends, which are discussed below, don't occur.

This means that the blockchain not only offers permanent storage of code, but also of funds. Nothing like this has ever been created prior to the creation of cryptocurrencies.

Now onto the cons: we'll only cover double-spending here, which is a huge disadvantage. Double spending is the reversal of a transaction to another address, and is a huge factor as to why confirmations are required with most bitcoin-based payment systems. There are lots of double-spends happening, but fortunately, most are very minor and only deal with a few cents. This is still an issue, however, and will likely never disappear completely. Confirmations do help prevent this, but it's still not a guarantee.

The benefits of blockchain, such as being decentralized, having immutability, and using tokens offer great opportunities for AI. Decentralization systems generally encourages data sharing.(In-Text quote) Developing AI models in this environment will lead to better models as people contribute to the data sharing. This interaction promotes a shared control of the AI within each individual person in the community. It takes out the company that uses AI for capital gains. Because blockchain is immutable, we could always take a step back and look at the decisions that an AI took. This is important because this is a practical way of monitoring and controlling AI. If the AI were to ever break down or make an error action that the AI took is recorded so we can always rewind to see specifically where the cause was. Blockchain token aspect allows for treating data & models as intellectual property which decentralizes data and model exchanges.

While blockchain promises diferent oppertunites for AI, its current platform is vulnerable to attacks by a quantum computer. Blockchain encryption uses two one-way computational technologies: hash functions and digital signatures. "Most blockchain platforms rely on the elliptic curve public-key cryptography (ECDSA) or the large integer factorization problem (RSA) to generate a digital signature ."(Quantum-secured blockchain, 2) The security of these algorithms is based the complexity of mathematical problems which can be easily solve by a

quantum computer with brute force. Andersen Cheng, co-founder of U.K. cybersecurity firm Post Quantum stated that "Bitcoin will expire the very day the first quantum computer appears."(In-Text quote)

Quantum cryptography, as stated by Dr. Makarov, is the only known method for transmitting a secret key over distance that is secure in principle and based on the laws of physics. Current methods for communicating secret keys are all based on unproven mathematical assumptions.(In-Text quote)

The method he is referring to is quantum key distribution(QKD), which uses quantum mechanics to guarantee secure communication. It uses photons to transmit a random secret key known only to the people making the transaction, which can then be used to encrypt and decrypt messages.(What is Quantum Key Distribution?). Researcher Evgeny Kiktenko at the Russian Quantum Center in Moscow, already claimed to have built the world's first blockchain that won't be vulnerable to encryption-breaking attacks from future quantum computers.(In-Text quote)

They are designing a quantum-secured blockchain where each block, hypothetically, is signed by a quantum key rather than a digital one. They propose that transmitting and encrypting information using quantum particles such as photons, which cannot be copied or meddled with without the particles being destroyed, ensures the blockchain's safety. The principle is based on Zero-knowledge proofs which allow you to validate information without sharing it.

The threat from quantum computers is certainly real and not just for blockchain technology. Any information that is currently stored using conventional cryptography has the potential to become unsecure when a powerful-enough quantum computer is built and ready to go. Therefore, it is essential to integrate QKD into blockchain for better security and avoiding singularity.

With the emergence of smarter and smarter artificial intelligence, the concept of the singularity and the fears concerning very intelligent machines becomes prevalent in the minds of many. The idea that one day we might be melded with or even replaced by machines is a scary idea, and one that could come true in the near future.One of the first fears of computers becoming sentient is the idea that if and when computers gain intelligence greater than or equal to our own, the machines will revolt against us. This is an idea that is very popular in science fiction and Hollywood with movies like The Terminator and the book and movie I, Robot being some of the most recent adaptations of the idea in the last few decades. As humans we fear that what we create could become so intelligent that the creation becomes uncaring of our existence and merely sees us as a lower species that needs to be eradicated. The fear revolves around the belief that the machines will judge us with the intelligence they have been given, and decide that their creators are bad.

One of the first steps humanity has taken towards becoming a singularity is when we started using machines instead of using humans for certain jobs. As Truitt explains in his article Singularity - Are We There Yet?, he explains that "... robots… were things that were touted as making auto assembly lines more efficient." Truitt also explains that another machine that constituted that time was the ATM, which solved the problem of having to do banking during normal weekday hours. The change from using humans to do these menial tasks, we have begun to slowly let machines enhance our lives while also becoming much more comfortable around them and letting them meld into our daily activities. This is the first step into becoming one with the machines.

One of the most important points about the coming of the singularity is that it won't just happen instantly, it has been slowly seeping into humanity. As we get closer and closer with technology and machinery, we start relying on the computers and machines to run our lives. Ben Goertzel

writes about the singularity coming as "... not something that's just going to happen to us - it's something that we're going to make. From a big picture perspective, huge advances like the creation of language, or tools, or mathematics, or computers are things that just happen … they happen because of the choices made by individual people in the course of conducting their lives." These choices made in our lives are made every day that we choose to continue using technology to control aspects of our lives. Because we use technology so often now, we could actually be closer to a singularity then we think. A fascinating article written by Jamais Cascio states that there are four possible scenarios to becoming closer than we are already with machines.

The first scenario is called Virtual Worlds, where we would become more and more immersed in virtual environments to the point that people spend most of their time in the virtual instead of reality. The second scenario is called Mirror Worlds, a concept that mimics our world as it is now, but includes much more data that is accessible in an instant. This mirror of our world as it is now includes data which before could not be delivered so readily, and makes us much more intelligent and quicker with results. The third scenario is one that has been developing and which is already taking place, called Augmented Reality. In this world, like the Mirror World, data is much more readily available but also viewable in day to day life where before one might have needed a separate screen to view the data being displayed. In this world, data is all around the viewer and visible instantly because it is displayed at all times on all subjects. The fourth and final scenario is lifelogging, or as Cascio also refers to it as the "participatory panopticon". This is also something developing in today's society, with the constant monitoring of everyone through security cameras, computer cameras, and cellphone cameras. People are already participating voluntarily in this scenario today, with the emergence of SnapChat and Instagram. Everyone is already taking photos and recording everything they do, which makes the process

of monitoring anyone in the world easier to someone with the right access and permissions.

These four scenarios show how even though we may think the singularity is years and years away, we might actually be developing currently what we will know as a singularity already, and voluntarily.

While the concept of man and machine merging and becoming a whole new being seems far-fetched to some and mainly science fiction, the singularity has been coming closer and closer to becoming real, and we are headed toward a singularity whether we know it or not. As technology gets more advanced, and machines start replacing people, at some point humanity and machine could merge and we would have the ultimate singularity become fact.