Assessment 2 - Team Project
Team Creative Protocol
For Introduction to Information Technology
(COSC2196)

Samuel Ashton, Shane Bunting, Jessica Delgado, William Ericson,
Matthew McCracken, Cameron McLaughlan

June - July 2020

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Part I
Individual Profile

Contact Details And Profiles

Samuel Ashton:

Student ID:	s3742249
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GitHub link:	https://samuelpaulashton.github.io/IIT/

Sam Ashton is a Brisbane based IT professional, working in the industry for the last 17 years. Having been interested in IT from an early age he has interacted with technology from the late 80's Starting with an MSX2 microcomputer, watching computing evolve through generations of advancement to today's world of cloud computing and online mobile devices in everyone's pockets. Throughout his career he has performed roles in IT support, System Administration, Network Engineering and IT Management. When not in front of a computer he enjoys fishing with his two children, Japanese sports cars and collecting Phantom comics, even if he doesn't get time to read them all!

Shane Bunting:

Student ID:	s3407441
Student email:	s3407441@student.rmit.edu.au
GitHub link:	https://shanebunting.github.io/IIT/

I am a 27 year old, Melbourne born Libra with my general interests being fitness, cars (Subaru all the way), computers, gaming, animation and security. Straight out of year 12 I went on to complete my certificate 4 in fitness and begin the journey into personal training. It was a weird time for PTs back then and from there I continued to upskill where possible and work on the side where ever I could. I obtained my pre app in electrical, but was unable to land a job due to being of mature age, basically it costed more to hire me. I also attended university for Game Art and Animation, but financially living expenses where too much at the time so I had to leave and gain full time employment. Moving forwards, this lead me instead to many physical related jobs which brings us to now where I am in the hunt to pursue my hobbies and turn them into a career in something I am able to commit to long term, as my body has begun to give me signs that it's time to take it back a notch. When I was in year 10, about 15 years old,

my parents took my brother and I out of school for a year and we travelled around Australia (Tasmania inc) and also the South island of New Zealand. It was a life changing experience that looking back on wasn't as bad as 15 year old me made it out to be.

Jessica Delgado:

Student ID:	s3864357
Student email:	s3864357@student.rmit.edu.au
GitHub link:	https://jessicaprojects.github.io/SP2Demo2020/

I am a 28 year old transgender woman living in Sydney and I currently do IT support for eHealth NSW. I am an amateur musician and have learned how to learn a new instrument every year since age 16. From the age of 18 I completed a Cert IV in Network Administration, Programming and a Diploma of Information Technology. From here I was able to secure employment in a helpdesk role supporting the largest library of applications used by a single organisation in the southern hemisphere. I have been able to perform various roles within the same organization, moving to application support for the eMR (electronic medical records) systems used in hospitals. I now work as a senior support technician for eHealth.

William Ericson:

Student ID:	s3866209
Student email:	s3866209@student.rmit.edu.au
GitHub link:	https://erics-willi.github.io/ITAssignment1/

Hello, I am William Ericson, student ID s3866209, a member of the team Creative Protocol. For my hobbies, while I enjoy listening to music, I also used to make my own, I studied Music performance and technical production, yes; I have performed live, no, I will not show you the videos. Over the years, I have hoarded a fair bit of music, while the bulk of my collection is digital (it takes up less space), I also have a sizeable collection of CDs and cassette tapes (and a few records here and there). I've interested in IT from a young age, it all started when one of my cousins showed me how to use Cheat Engine, while I had fun adding extra stuff to the games I played, I also enjoyed putting in random codes and seeing what it would do. Before joining RMIT, I studied Computing at Deakin College and then Computer Science at Deakin University, but it reached the point where rent was too expensive, so I had to leave.

Matthew McCracken:

Student ID:	s3864453
Student email	s3864453@student.rmit.edu.au
GitHub link:	https://aussiematt84.github.io/IIT/

I am a 35-year-old father of 2, who works full time for a hotel chain where I see to all their IT needs. I was born in Bundaberg, Queensland and, as a young boy, moved to Central West Queensland where I grew up. I currently live in Johannesburg, South Africa. I completed my school career at Barcaldine State School at the end of Grade 11, when I left to pursue a career in IT, as a trainee position opened up at the Department of Main Roads, this is also where I studied my Cert 2 in IT through Tafe. My personal interests are gaming, travel, golf, cricket, and rugby league. I have always had a keen interest in all things tech and like to keep up with what is happening in the world of Technology, both regarding hardware and software. I have always enjoyed understanding how things work, whether it was taking apart an old computer or looking at the source code of how a website was built. My experience in IT include 7 years at The Department of Main Roads following my initial traineeship in the IT department, 6 years as an IT Administrator for a Hotel chain.

Cameron McLaughlan:

Student ID:	s3717363
Student email	s3717363@student.rmit.edu.au
GitHub link:	https://cammclaughlan.github.io/IT-project-1/

I am currently 20 and working in the Australian army as a rifleman. I currently reside in Townsville but am originally from Melbourne. I completed year 12 in 2017 and have decided that I need to continue my learning and learn about something I am passionate in. My favourite activity to do in my spare time is canoe slalom, which a field of Whitewater kayaking My interest in IT started from a young age I had a relative who worked at apple and always had the newest computers and phones, from that young age I was hooked with all things technology. This love continued as I got into high school and was able to study multimedia in my earlier years than during my VCE study software engineering which is when I realised that I wanted to make some sort of career out of it. My current career has lead me into signals and radios which has given me a different experience in networking and IP while also exposing me to how many different technologies and system work and connect to share data and information around the world securely and undetected.

Part II
Team Profile

Personality Traits

Student	Test 1 Jung Typology Test	Test 2 Interpersonal Skills Self-Assessment	Test 3 What's Your Learning Style
Samuel Ashton	ESTP: Extraverted Sensing Thinking Percieving	Total Score: 69% Listening: 46% Emotional Intelligence:57% Verbal Communication: 93% Communicating in groups: 81%	Learning Style: Auditory Auditory: 45% Visual: 40% Tactile: 15%
Shane Bunting	ISTJ: Introverted Sensing Thinking Judging	Total Score: 62% Listening: 73% Emotional Intelligence: 55% Verbal Communication: 55% Communicating in groups: 66%	Learning Style: Tactile Auditory: 15% Visual: 40% Tactile: 45%
Jessica Delgado	INFP: Introverted Intuitive Feeling Perceiving	Total Score: 50% Listening: 50% Emotional Intelligence: 58% Verbal Communication: 55% Communicating in groups: 37%	Learning Style: Visual Auditory: 30% Visual: 40% Tactile: 30%
William Ericson	INTP: Introverted Intuitive Thinking Judging	Total Score: 50% Listening: 67% Emotional Intelligence: 34% Verbal Communication: 68% Communicating in groups: 44%	Learning Style: Auditory Auditory: 45% Visual: 30% Tactile: 25%
Matthew McCracken	ENTJ: Extraverted Intuitive Thinking Judging	Total Score: 59% Listening: 48% Emotional Intelligence: 55% Verbal Communication: 77% Communicating in groups: 58%	Learning Style: Auditory/Tactile Auditory: 35% Visual: 30% Tactile: 35%
Cameron McLaughlan	ENFJ: Extraverted Intuitive Feeling Judging	Total Score: 68% Listening: 60% Emotional Intelligence: 62% Verbal Communication: 80% Communicating in groups: 69%	Learning Style: Tactile Auditory: 30% Visual: 35% Tactile: 35%

Comparisons and Descriptions

When a team is first put together, it may take some time to work out each member's dynamics and skills in the team scenario. With the help of these types of tests, the results can assist us to find out certain things about our team members much quicker and allow them to use their skills optimally.

Teams are made up of a group of individuals, each individual in the team can take on one or more different roles, both formal (such as chairing or leading) and informal (such as interceding when there is any conflict). The most effective teams are diverse, and contain people with a wide range of skills and role preferences.

In terms of the above test results of our team, we have 3 introvert and 3 extrovert members. Generally the members who scored as extraverts in the Jung Typology Test scored higher in the Verbal Communication and Communicating in Groups sections of the Interpersonal Skills Self-Assessment and the introverted people did better with Emotional Intelligence and listening. This might mean that the members who scored higher in communication would need to ask the members who scored lower in communication more questions in order to get them to communicate their ideas more openly and clearly and involving them more in team discussions.

Working well in a team requires all the members to be understanding of the strengths and weaknesses of their team mates and also requires each member to do their best to work together well. Taking each members strengths and weaknesses into account could help the members work together towards the common goal.

In a team situation, sometimes conflict can arise, one of the best ways to resolve conflict is through communication. When one member of the team is struggling with certain tasks and maybe lagging a bit behind, the other team members could talk to that team member to find out what the problem is and perhaps see if they are able to assist that team member to get his task done. That way, the team is working together with the common purpose of completing the assignment in the best interest of the team as a whole.

As time goes on and the team works together more, the dynamic could change as the members get to know each other better and are able to communicate more openly and get to know each other well.

Part III
Ideal Jobs

Dummy Text

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Part IV
Tools

Website and Git repository

Website

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Git Repository

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Git Audit Trail Commentary

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Part V
Industry Data

Job Titles

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Skill Set Required

IT Skills Ranked

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General Skills Ranked

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Highest Ranked IT Skills Not Required

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Highest Ranked General Skills Not Requried

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Part VI
IT Work

Interview With An IT Professional

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Part VII
IT Technologies

Autonomous Vehicles

Written by

What Does It Do?

Autonomous vehicles are cars or trucks where human drivers are not needed to safely operate the vehicle. They are also known as driverless cars and are controlled by the use of software and sensors to control them and are capable of sensing their environment and moving safely with little or no human drivers.

Autonomous technology isn't an all or nothing type of technology. There is a whole spectrum from driver-enabled to fully-driverless vehicles. We still have a way to go to get to level 5 autonomous vehicles. There are 6 levels of autonomy as follows :

Level 0 - No Automation

This describes your everyday car with no automation.

Level 1 - Driver Assistance

On this level we find the introduction of Advanced Driver Assistance Systems (ADAS) that either control steering or speed to support the driver. An example of this is adaptive cruise control that automatically accelerates and decelerates based on other vehicles on the road.

Level 2 - Partial Automation

This is where it gets a bit more interesting. Although the driver must have hands on the wheel and be ready to take control at any given moment, at this level, both steering and acceleration are simultaneously handled by the autonomous system. The human driver still monitors the environment and supervises the support functions.

Level 3 - Conditional Automation

Level 3 autonomous vehicles are capable of driving themselves, but only under ideal conditions and with limitations, such as limited-access divided highways at a certain speed. However, the system might require the intervention of a human, so the driver must be able to take control at all times.

Level 4 - High Automation

At level 4 autonomous vehicles have high automation and can fully drive themselves but only under certain conditions. The vehicle won't drive if not all conditions are met.

Level 5 - Full Automation

Once we reach level 5 autonomy we have full automation and the vehicle can fully drive by itself. The vehicles on this level should be able to monitor and manoeuvre through all road conditions and require no human interventions whatsoever, which eliminates the need for a steering wheel and pedals.

The environment and circumstances needed for an autonomous vehicle to operate will greatly influence the level of autonomy that can be achieved, for instance the terrain, traffic or the weather. An autonomous vehicle may operate perfectly fine on a highway at level 4 but in a busy city centre may need to revert to level 3.

Level 5 autonomous vehicles have the same mobility as a human driver. Humans are able to perceive and sense a large amount of information and make a decision and act on it in a very quick time and a fully autonomous system should be able to, at the very least, match or even outperform this ability.

The main technology required for autonomous vehicles is interaction between predictive artificial intelligence and imaging technology. The sensors in and around the vehicle create 3D pictures around the vehicle and the artificial intelligence then interprets how the vehicle should respond. Although there has been significant progress in this area, the aim to bring the vehicles to be fully autonomous is to reduce the amount of time between image and response to near-zero.

Designing the autonomous vehicle to be able to adjust to all driving scenarios, in all road, weather and traffic conditions is the biggest technical challenge that needs to be achieved.

In the latest research and progress done with autonomous vehicles, the leading sensor technology approach is thermal imaging. A thermal imaging sensor can detect longer wavelengths than those in the visual spectrum, images below the visual spectrum, making it more able to detect humans, animals, and objects in different weather conditions, regardless of the time of day.

Due to the fact that the vibrations of the vehicle can make the LIDAR data unstable, thus making the reliability of the technology limited, this is a drawback of using it as a sensor for autonomous vehicles. In response to this, MIT has designed localising ground penetrating radar to solve the problem of sensing complex surfaces. This technology sends radio waves into the ground and creates a stable digital map of the area which is not affected by weather or light conditions. This, together with the sensors is the most

accurate technology to date and GSSI is continuing the development of this technology.

With all the advancement in autonomous technology, getting it to a point where it is fully autonomous can only go as fast as sensor technology will allow. All of the sensor technology has limitations which restricts it in being able to take into account the unpredictable weather and human behaviour patterns which the vehicle may encounter. The best options thus far are thermal imaging and localised ground penetrating radar insofar as sensor types.

What Is The Likely Impact?

Autonomous vehicles are designed with the intention to simplify our lives and will come with their own set of advantages but, there will also be some disadvantages that come along with this technology.

Autonomous vehicles will prevent human error in a lot of situations as the system controls the vehicle. Thus there will be no opportunity for interruptions and distractions where human drivers could be prone to.

Due to the technologies used in the vehicles it will create algorithms that will determine the correct distance between vehicles, there is less likelihood of an accident occurring. Traffic jams will also become less prevalent when more driverless cars are on the road as they are able to communicate with each other, which will reduce congestion and improve traffic with increased lane capacity.

Autonomous cars will also have the ability to drop you off at your destination and then proceed to find a vacant parking spot, saving you time and money looking for a parking. You will also be able to save more time with an autonomous car as it takes control of the driving, leaving the driver with spare time to continue work or make calls without having to worry about road safety.

For people with disabilities or elderly people who have difficulty driving, autonomous vehicles can help them to have access to safe transportation. This also leads the way to driverless taxi services for all.

Some of the disadvantages of autonomous vehicles could include things such as safety concerns. Although a vehicle may be successfully programmed, an unexpected glitch can occur, which could cause the malfunctioning of certain sensors or components.

Autonomous vehicles could also become a target for hackers, giving them the opportunity to collect personal data of the owner, thus further compromising there security.

The change to autonomous vehicles could also impact the employment rate as they take over the duties and responsibilities of humans such as taxi or truck drivers, who may lose their jobs as they are no longer needed.

How Will This Affect You?

At this stage the cost of a fully autonomous vehicle would be expensive, due to the cost of the technology needed, but this may change and over time with the development of the technology and the mass production of driverless cars, giving a more average earner the opportunity to own one.

However, If autonomous cars are introduced into daily life too quickly, people could easily be overwhelmed by the advanced technology and our daily lives could change in various ways.

The use of driverless cars could simplify our lives by the prospect of fewer accidents which will result in avoiding injuries and saving lives. It could also save us money because they are more efficient when driving and reduce traffic congestion. There can also be a total elimination in terms of traffic fines and reduce the cost of insurance associated with owning a car. Driverless cars would also be low maintenance saving time and money having them repaired.

The more common place driverless cars become, the more we will rely on them in our day to day lives. They could be used as taxis or share drive options, simplifying commuting to school, work or even social and sporting events more easily. The convenience and safety of the driverless cars will also save us time as we can spend our time commuting more effectively doing other stuff as opposed to having to spend time stuck in traffic and concentrating on driving.

Autonomous vehicle could also be helpful to me and those around me when it comes to businesses that do deliveries, as you could order things online and it could be delivered using an autonomous vehicle, getting a contactless delivery to your door.

So all around, once driverless cars become more common place, it would have a general positive effect on my life and that of those around me.

Blockchain and Cryptocurrencies

Written by: Cameron McLaughlan

What Does It Do?

Blockchain technology is a decentralized and distributed, digital ledger used to record transaction of any type whereas cryptocurrencies are a digital currency which operate independently of a central bank, cryptocurrencies commonly use blockchain technology to operate, maintain and distribute themselves. What makes blockchain technology state of the art is its decentralisation due to its distributed digital ledger, this means that instead of one data base keeping a record of all its data or transactions that record is made public to everyone with the public key, this allows an indefinite number of copies of the records making it almost impossible to hack. Even if someone was to create a public record, the system would recognise its difference to all other existing records, and it would be changed to be the same as all others.

With the first cryptocurrency and the first use of blockchain technology being only in 2009 (bitcoin), these technologies are fairly new, and their potential have really yet to be explored. currently many large corporations are starting to use or exploring the potential blockchain may have to increase productivity or efficiencies in their business, some of these include Shell, ANZ, DHL and Bank of China. They all are looking at or are implementing blockchain in their transaction or record keeping.

In the next three years, it could be expected that many larger corporations that have the capital and ability to invest in the technology and involve it in any part of their business. This could be a part of many different types of business and involve helping shorten their supply chain, medical record keeping, transactional logs, stock movement and with its implementation being on held back by an individual's creativity.

In terms of banking blockchain will allow much faster and secure transaction, due to its decentralisation it would allow people sending or receiving money to be approved quicker due to the algorithms running 24/7 and with no need for two or more banking institutions to approve a transaction. Currently transactions can happen in a fraction of second but the actually process of verifying that either accounts exists and has access or is allowed to transfer the amounts being sent can take up to several business days and requires banks to have different arrangements and agreements all over the world. By removing this complicated verifying process blockchain has the ability to revolutions not just the banking sector buy many different finance sectors including stock broking and land transfers which both have a very similar issue when it comes to verifying transfers.

Cryptocurrencies now already a highly tradeable currency have yet to

make a big dint in traditional spending, in the next three years we could see a greater shift towards people not just trading cryptocurrency but using the same as a tradition currency to purchase goods and services.

Ever increasing internet speeds and interconnectivity of the world is what fuels blockchains true ability and what makes any crypto currencies universal around the world. In the cryptocurrency world (especially shown in bitcoin) the ability to be a part of the system also known as "mining" makes the systems viable by allow users to be a part of the verification process in reward for a small amount of the currency its self, this ability to "mine" is what allows the cryptocurrencies world to function and be so private and secure.

What Is The Likely Impact?

This technology could have the likely impacts on finances and personal security and privacy. It may change the way our transactions are stored and accessed, also the speed that certain transaction are authorised and approved. Into the future business that integrate this technology into their business will create improved efficiencies in the way certain data or certain process are done internally. With some large corporations or certain industries it will help the way data or records are shared, increasing their interoperability, ie. Government contractors that need to share transaction that need authorisation and approval will be able to have this run 24/7 and externally to either organisation. An important impact of this technology that we are starting to see with cryptocurrencies is their use in criminal activities and the way in which authorities are adapting to this. Due to our current banking system being centralised and complaint to a certain countries laws and other international laws transaction can easily be traced but with the decentralisation that blockchain and cryptocurrencies have it allows them to transfer any cryptocurrencies and have their identity and details of their transaction keep private. This could potentially affect people whose jobs revolve around record keeping, weather that is physical or digital records. It may see some of them lose their jobs, but this will possible be countered by the increasing in jobs to build and maintain the blockchain system. Over the next few decades blockchain technology could replace the current technologies and systems that currently underpin our information storage across the World wide web, our current central servers (weather for private or public business), this process is slow because it does not provide an upfront cost benefit but a long term efiencies benefit if the company/institution is able to implement it correctly

How Will This Affect You?

In your daily life this technology will change how your personal information and day to day transactions happen. You as an individual may not see the changes yourself but your personal privacy and security will be looked at in another way. You may have a greater sense of privacy of you personal data especially in the areas of finance and medical data which may see the biggest use of blockchain. These changes will see the basic background of all our interactions and storing of our data effected, you may no longer worry about the privacy concerns for such things as My health records in Australia if it were to use block chain technology or loss of credit card information if platforms on the web are using blockchain or any type of cryptocurrency to make payments for goods and services.

Even with the increasing use and potential changes into crypto currency, the way we make purchases and have transactions won't likely change, we will most likely just use the currency we currently have transitioning from a central bank system where all our transactions are processed to a blockchain system where we are still issued crypto currency and will still most likely have banks that will still act in some fashion as they do today as holders and lenders of the crypto currency. This may affect your friends and family if you are separated overseas as blockchain technology and cryptocurrency is very easy and quick to send over borders due to the decentralised nature of both technologies.

Cyber Security

Written by: Shane Bunting

What Does It Do?

In this ever-expanding world, while technology is a key driver for growing societal and economic benefits, it also brings about new security challenges, through the never-ending attempts of prominent, re-emerging cybersecurity risks and threats, 'hackers'. As of recent times, the world has provided some of the newest defense in the never-ending battle to protect the world from those unauthorized to access secured data. One notable development in the field is a new form of defense known as 'moving target defense (MTD)'. It is a new concept that was created by the DHS and finally has the chance to potentially give cyber defenders, the good guys, the upper hand against the war on cybersecurity. MTD introduces a process, that constantly changes the attack surface across systems to increase uncertainty and complicate attacks. This creates confusion for those who are attempting to attack as they are now unable to target what they cannot see. MTD can be implemented in different ways, including via platforms or an applications code and data. However, where MTD promptly works is through the distribution of decoys, which can range from a false endpoint to servers and even IoT devices. The distribution of distractions constantly shifts the online environment, prompting attackers to question if the vulnerabilities they find are real or not, and even if the systems are real or a decoy. Having the ability to force attackers into questioning their attacks along the way slows down their end game and gives the defenders the advantage in being able to deal with, implement defenses and seize any attack opportunities. There is a similar approach, another take on this concept, that was developed by an Israeli company 'Morphisec' who have developed what they also refer to as 'moving target defense'. This works similarly in the way that the DHS' take on MTD does but instead of seeing the results through distraction distribution, they have taken the idea of being able to keep data moving and harder to pinpoint by scrambling the names, references and locations of files in the server's memory. This makes it incredibly difficult for cyber threats to attack maliciously and use malware to infect a system. As an added security measure, and to reduce the likelihood of a successful attack even further, the moving target security was further developed, adding in a function that changes the scramble each time the computer is booted. This ensures that the system will never have the same file names or configuration as it did before making it even harder for breaches or attacks to occur. While both of these developments can reduce the need for threat detection, offer scalability and a more level playing field, they need to be able to fit within any existing infrastructure which if not can leave possible back doors and vulnerabilities

open. They are by no means a perfect way to completely stop attacks from happening, instead, they both work in a way that assumes attacks will continue to happen. As it is better to work on the assumption that there is no perfect security measure, it is more beneficial to simply try to provide an advantage in making attempts at attacking more difficult where possible and can be seen as just one of many strategies that can be implemented as part of the wider scale defense in cybersecurity.

As well as these new strategies, in the next few years we can expect the industry to continue growing, and with that more security challenges to arise as new technology such as 5G continues to be implemented, and other technological advances such as AI and Biometrics continue to hit the market on a global scale. These advances will have a huge impact on the way we look at and view security across the world and provide some amazing opportunities to create an even stronger defense than we have at present. The technology for AI and Biometrics can be seen already in the world but in terms of cybersecurity, however, is still in the works as it requires some very in-depth understanding of the impact and roles that both will play moving forwards.

What Is The Likely Impact?

The potential impact of the new and emergent development in technology over the next few years, will see criminals continue to try and seize what they can due to an increase in lack of understanding of how these technologies work. In turn the minds behind defending the digital future constantly needing to identify and understand the potential new risks in these new developments. All of this as well as continuing to see to it that our current Cybersecurity landscape remains protected. We will see millions of new devices that will be connected to the internet, posing many more opportunities than before for threats to attempt to steal what is not rightfully theirs. Advances such as AI and Biometrics whilst still being developed create both exciting opportunists in Cybersecurity defense and at the same time provide just as many risks and potential threats. Given the need for huge efficiencies in detection, provision of situational awareness and real-time remediation of threats, automation and AI-driven solutions are the future of Cybersecurity. However as previous Cybercrime has shown us, the advances in any technological development in AI have significant fallbacks as they are usually quickly seized upon and exploited by the criminals. Whilst AI is something that we will need with future advances, it is not something that we can just openly hand over to the criminal community. Such the same can be seen for Biometrics, being thought of by experts as the 3rd factor in authentication. The opportunity is there to create and run something phenomenal, but to do so would require the data of an individual to be stored globally and will drive cybercriminals to target these high volumes of data. These

advances in technology for the current time and over the next few years will I believe create more available jobs. Those that are in charge of defending our digital future, will continue to need assistance as our drive for societal and economic growth brings the need for a greater understanding of how the security community believes the cyberthreat will change with technological advancement. AI for one will never be able to replace an analyst's insight and understanding of the field as without this we cannot move forward to an all automated procedure/strategy due to the potential for risks and attacks being too high.

How Will This Affect You?

In my daily life, I have no idea how any of these will affect myself, but as for my friends or family, some concerns could be raised. I can only hope that with the continued development, research and understanding that we as a society do not need to follow suit of other countries and begin to monitor, restrict and ban certain applications and websites. For this to happen it would then affect my life, in limiting my ability to do such daily tasks as browsing the net, using Facebook or potentially even what emails i can send. This would also be an issue for those around me, close friends, family and society ultimately. I would like to see and believe there is a future in which technological advances will make our lives better, rather than worse off, with more fulfillment, opportunities and protected information/privacy. However I also realize that with this, there is a possibility that to achieve this, we as a society may need to be monitored and analyzed more so than ever through technological advances, should the need to ever arise. It also raises the question of safety as if the good guys, the ones who are employed to protect us, our society, have access to these measures, what does it mean should these accesses ever fall into the hands of attackers? I guess that is always going to a fallback with any new concept, idea or implementation. Hackers are becoming increasingly innovative with the techniques they use to access sensitive data. In many cases, new technologies that have just hit the market are helpful to hackers, who take advantage of people's lack of understanding of how those technologies work. Threats will always remain active and more prominent than ever, so long as there is confidential information being used and stored throughout the world.

Robotics

Written by: William Ericson

What Does It Do?

Robots can do many things; they can do jobs that would be incredibly boring and tedious for humans, they can access areas that would have been extremely dangerous or impossible for humans, help humans lift and do things that would have been hard or impossible without human assistance, and, make us laugh (ASIMO falling when walking up stairs or NAO robots playing soccer). Robots now are quite advanced; they can balance themselves and move autonomously (with the use of sensors), SPOT, a robot from Boston Dynamics builds upon its predecessors (BigDog and LS3) while being both smaller (dog-sized instead of mule-sized) and significantly lighter (24kgs compared to 450kgs). In contrast, SPOT cannot lift as much weight as its predecessors. It makes up for it in its weight, size, and expandability, some of the proposed applications for SPOT are building inspections for construction sites, tunnel inspection in the mining industry as well as healthcare, where SPOT can deliver food and medicine, as well as disinfect rooms SPOT is being used in Singapore to help enforce social distancing during the Covid-19 outbreak. The military will more than likely use robots like these in the future; this is not the first time robots were involved in the military. LS3, a predecessor of SPOT, was used to help deployed squads. With the advancements in microprocessors and the drop in the price of sensors, robots are getting cheaper and more powerful. Processors are more powerful and efficient than before. A high-end consumer CPU only had between 4-8 cores; now, there are CPUs that offer 64 cores and 128 threads. Robots can analyze and make decisions from sensor data faster than ever, for lidar sensors, more companies are making lidars, competing against each other to make the most powerful lidar sensors while keeping the costs low, so low in fact that lidar is now a feature in the 2020 iPad Pros, something that would have been impossible a few years ago. With the costs of these components going down, it is cheaper than ever to get into robotics.

Robots are being used in the food industry more than ever. Spyce, a restaurant in Boston, MA that has the first robotic that can cook complex foods, they do have staff that prepares the ingredients and garnish the dishes, but the robots do all of the cooking. People order the food on the store computers, and the robots make their meals. Creator is a San Francisco based burger join that makes burgers using a robot, the robot slices the bun, sauces them, cuts the burger toppings to order, grates cheese for the burger, and the meat gets ground and cooked to order, the robot then assembles that burger, it can make a burger in around 30 seconds, this robot does it without needing any human interaction. In CES 2019, a bread-baking robot

was showed off, these sorts of robots could be used in bakeries so that bakers can focus on other, more challenging to make types of bread and pastries and leave the loaves of bread to the robots. These robots are amazing, but there are still quite a lot of problems with them, while the burgers can cook food, it cannot cook food that it does not know, and in the case of the robot in Creator, it can only make burgers. Soon, robots may become a staple in kitchens.

What Is The Likely Impact?

Robotics will lead to a loss of jobs in the future, while mechanics and software developers may be in more demand, farmhands, factory workers, bakers, cooks, and jobs that are repetitive and do not pay as much will not exist anymore. In the agriculture industry, some robots can target and spray weeds entirely autonomously. Since it runs on solar power, it can keep working as long as the sun is out. There are also large machines that use machine learning and robotics to apply herbicide to only the weeds, and the developers claim that it can use only a tenth of the usual amount of herbicide used compared to traditional means, when it comes to picking fruits, there are robots that can pick citrus fruits and ones that can automatically harvest strawberries. While this is fantastic for farmers, people who rely on fruit picking, or those that are farmhands, are now out of a job, it would not be surprising for farms to have less than ten people during harvest time in a few years. In the food industry, jobs that were common just decades ago are being replaced by robots; there are robots that can ice cakes and muffins. In car manufacturing, robots have replaced people. It allows cars to be built to a higher standard and lowers the cost for the company; hundreds of jobs have been lost because of this. The people affected by robotics technology are usually those that do manual or unskilled work, a lot of these workers, especially ones that work in factories, have been replaced by robots and machines, and at this rate, it is only going to get worse.

How Will This Affect You?

Robots are becoming more common than ever, they can do plenty of jobs, and in the future, many jobs may not exist anymore. However, it can also create new jobs and opportunities; more people are needed to develop and maintain these robots, this means that there are more ways to get into this industry and the fact that it keeps on growing means that it will not be as challenging to find employment in this field compared to the past. Robots will be more commonplace in the home, and this means that people can do more important things and let the robots take care of the chores. Appliances like dishwashers save plenty of time; however, with robotics, tasks like cooking may become less of a necessity and more of a hobby. Some

robots are being developed that try to identify different types of clothes, fold and sort them according to what type they could be, these robots currently fail at that task, in the future, it will not pose a problem for them, this will make life a lot easier for many people. However, on the flip side, the introduction of robotics in factories and other industries would be a negative for family members of mine, they have seen many people lose their jobs because a robot was introduced that was able to do their job faster and more efficiently. With faster, smarter, and more efficient robots, harder tasks can be done by robots; Amazon has been using robots in their sorting facilities to move packages around, but, they still need to be monitored by humans. For postal services, large robots have been made that can sort packages and letters. Not as many people are needed in these sorting facilities. For robots that can work in factories, robotic forklifts have been made, and while they may not be as common as some other robots, they will probably get cheaper and more accessible in time, potentially putting some friends and family of mine out of a job.

Part VIII
Project Idea

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Part IX
Group Reflection

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