

Assessment Two -

Note – Keep everything you add in one colour unique to you, so that everyone knows who wrote what.

Adam Saleh - Blue
Jay Meredith - Purple
James Lake - Yellow

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Team Profile – iTeam

My name is Adam Saleh, my student number is S3940024. My hobbies include playing video games (Assassin's Creed, Skyrim, Dragon Ball XenoVerse, Halo, Sonic), watching movies (Expendables, Terminator, Rocky, The Mummy, Spiderman), tv shows (The Flash, Big Bang Theory, Futurama, Simpsons, One Piece), and abridged series (SAO Abridged, DBZ Abridged, Yu-Gi-Oh Abridged). I've done pixel art for a few months and started trying out blender (I made a list of hotkeys) because I'm interested in design as a hobby. The IT jobs I'm most interested in are software development and game development.

My interest in IT is mainly in programming, machine learning, robots, and the potential of artificial intelligence, however my skills and experience are very little. I started IT last year with the Cert III in IT with Tafe. After the Cert III, came the Cert IV in Programming which taught someone who couldn't even display "hello world" C#, SQL, and HTML/CSS/JS. I taught myself a little bit of Python (Py game) and Java (J Frame / Windows) before starting this course. The Cert IV I did, had a React Native course, but if I were to use the language I would fail.

My Myers-Briggs personality is the ISTP-T Turbulent Virtuoso, this personality type is described as rationalized curious makers who prefer pulling things apart to put them back together, usually better than it was before. They are known as friendly, private, curious, overhasty and practically realistic. An ISTP's strengths include optimistic/energetic, creative/practical, spontaneous/rational, being able to prioritise, relaxed, and being great in a crisis. Their weaknesses include being stubborn, insensitive, private, easily bored, disliking commitment, and risky behaviour.

The learning style best suited to me is the pragmatist style, a style that learns best from practical, case studies, problem setting, and discussions. A pragmatist is keen to try out ideas/theories to see if they work, search new ideas, and take the first opportunity to test an application. My workstyle test result is "open to improvement", essentially this workstyle has the skillset and performance to do well with the status quo but has the potential or desire to go above and beyond.

In this team I should be able to do the work, come up with creative solutions or ideas, prioritise what I must do, try out new software willingly, and create some interesting code for the game. However, there's no guarantee that any of you will end this course knowing a lot about me. My easy boredom means that uninteresting work will be left last, no matter how important it is. Theory work doesn't work well for me, as I'm able to learn thousands of times better by trying something instead of hearing about it.

My name is Jay Meredith, my student number is S3951987. My passions are Game Design, 3D art, and music. I have a Game Design Certificate from JMC Academy, and I also hold a Certificate III in Retail. My favourite hobby (aside from the three I have previously mentioned)

was being the leader of a competitive Counter-Strike team. I backed the idea for a team name 'iTeam' because I like the technology theme that is incorporated into the name.

The Myers-Briggs Personality Type Test gave me the INTJ-T personality type. The INTJ-T personality type indicates that my strengths are logical thinking, intuition, and determination. It also indicates that my weaknesses are arrogance, over-criticism, and dismissal of emotions. My strengths are going to provide the group with logical problem solving, confidence in decision making, and motivation. My weaknesses are going to be needed to be kept in check or we may have problems with team chemistry and team morale.

The online learning test indicates that I learn based on logic primarily and, learn well in group environments or solitude. The test states that my learning weaknesses are physical learning, and sub-par visual learning. My strengths are going to be helpful to our team because my logical, adaptable learning style will be great for both solo study and group study. My weaknesses may cause issues if we must learn physically or visually.

The workstyle test that I chose, indicates that my strengths are organising and planning, managing projects, and developing communication strategies. The test also indicates that my weakness is likely to be an overfocus on the administrative side of working as a team. My strengths will help us coordinate as a team but, my weakness may result in the issue of me playing catch-up with the other team members.

In conclusion, my strengths will provide the team with a logical thinking decision-maker who will help our team with administrative skills, determination, and an adaptable learning style. My weaknesses, on the other hand, may cause issues with team chemistry, learning through physical or visual mediums, and an overfocus on administrative tasks. With my strengths and weaknesses considered, I believe I will help this team thrive. To help this team thrive, I must remember my weaknesses and be constantly aware of them because once they can be suppressed, I will be a great teammate.

My name is James (s3936965), and I have worked as an IT technician for several years before moving into operations. At present, my hobbies include 3D printing and CNC machining. Something I have always enjoyed is gaming mostly on console and mobile. I have a good fundamental understanding of IT hardware but have always felt my software understanding could be better. I would love to develop skills that would allow me to produce mobile apps, but I have recently taken an interest in machine learning and AI (Artificial Intelligence).

As a member of iTeam, I am looking forward to sharing my skills and expertise and learning some new ones from fellow team members.

My test outcome for the Myers Brigs personality type was Architect INTJ-A. The architect's personality type is outlined as a quiet individual who values organisation and rationality, these values I align with. Individuals with this personality type can be viewed as ambitious and

assertive; however, to work within a small team, I believe it is beneficial to be flexible and play to the entire team's strengths rather than one individual.

My Learning style test outcomes, Auditory: 15% Visual: 55% Tactile: 30%. This test aligns with what I know about myself and how I learn. While my auditory percentile might indicate I am not a good listener, I believe this is more specific to how I can take in new information. I am much better when I can be shown something rather than told. The refinement of these skills comes from hands-on experience of the tactile branch of the above outcomes.

My creativity test score was 68.8, a remarkably arbitrary number assigned at the end of a creativity test. However, within that number were indicated certain aspects of creativity that I was more proficient at, such as complexity or the ability to take in and manipulate large amounts of data. Paradox, the ability to accept and work with contradictory statements and curiosity, is the desire to change or improve things that everyone takes for granted.

Ideal Jobs -

James L – Machine Learning Engineer

Adam – Software Developer

Jay – Software Engineer

[illegible]

Tools -

Meeting Links -

- [Sunday Meeting](#) (Recorded meeting one)

Tools	Set Up / Complete? (<input checked="" type="checkbox"/>)	Used For -
Website		
GitHub Repo	InProgress(James L)	
Spark Plus		
MS Teams Info		

Industry Data -

- What are the Job Titles for your group's ideal jobs? How do each of these rank in terms of demand from employers?
- From your group's ideal jobs, you can identify a set of skills required for these jobs (we will refer to this as your group's required skill set). These can be divided into general skills (communication, problem solving, writing etc.) and IT-specific skills (JavaScript, SQL, etc.)
 - How do the IT-specific skills in your required skill set rank in terms of demand from employers?
 - How do the general skills in your required skill set rank in terms of demand from employers?
 - What are the three highest ranked IT-specific skills which are not in your required skill set?
 - What are the three highest ranked general skills which are not in your required skill set?
- Having looked at the Burning Glass data, has your opinion of your ideal job changed? Why or why not?

IT Work -

Potential Questions

What advice would you give to someone starting a career in IT today?

What is a completely underrated skill you use every day?

Where do you see your career in 5 years?

Do you think there is an emerging technology that will change your job in the near future?

If you could change one thing at work, what would it be and why?

What are your job's duties?

Who do you communicate with during your job? What types of roles are they in?

Where do you spend most of your time at work?

What do you find most challenging about working in your role?

What is your favourite part of your job?

Questions Suggested in the Interview Guideline –

1. Please tell us about your IT work. What exactly do you do?
2. Please tell us about the industry you work in.
3. What other kinds of work do you have to do?
4. Who are all the different people you interact with in your work? Please tell us about them.
5. Please tell us about your interactions with other IT professionals.
6. What about your interactions with clients or investors?
7. What aspects of your work do you spend most time on? Please tell us about these.

8. Which aspects of your work do you find most challenging?
9. Finally, can you share an example of the work you do that best captures the essence of the IT industry.

Interview Answers -

IT Technologies -

Insert tech, then answer the following:

- **What does it do? (600 words)** What is the state of the art of this new technology? What can be done now? What is likely to be able to do be done soon (say in the next 3 years)? What technological or other developments make this possible?
- **What is the likely impact? (300 words)** What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create, replace, or make redundant any current jobs or technologies?
- **How will this affect you? (300 words)** In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?

Machine Learning

Machine learning is the method of teaching computers how to learn so they can analyse data to answer questions. To learn, computers need to run tests on themselves thousands of times, sometimes millions. There are different methods of teaching computers to learn which are called models. There are various models for machine learning, but they all fall into two categories, supervised learning, and unsupervised learning. Supervised learning is when a person needs to oversee the machine's approach. For example, the person will tell the machine the categorize data given to it as either a dog or a cat. In this scenario, the machine would run tests on itself to see if it has categorized the data correctly. The machine will do this until it has categorized the data correctly. Unsupervised learning, on the other hand, is when the machine identifies clusters of data and then categorises them without set categories identified by a human, these categories are known as classes.

We can use machine learning to perform many different tasks, including but not limited to better artificial intelligence in video games, personalised digital media, and digital personal assistants. In 2016, the greatest go player in the world was defeated by IBM's Alpha Go. Go is an ancient Chinese game that is known for its extremely high difficulty, the Alpha Go was designed for tackling the task of mastering the game to demonstrate how far machine learning has progressed. The way it practised Go was by practising against itself millions of times. This project was one of, if not the biggest showcase of the power of machine learning in gaming. Personalised digital media is present in streaming services such as Netflix, Spotify, and Apple Music. The algorithms used in these streaming services will pick recommendations for you, based on the content you previously enjoyed, or they can be used to eliminate buffering or low-quality video. Digital personal assistants such as Amazon Alexa and Google Home are only the beginning of the age of digital personal assistants. Companies like Amazon and Google are currently financing development for better voice recognition and daily routine machine learning to open the door to the next step in digital assistant development.

Due to machine learning, we are likely to have robots that can be our friends, in-home robots for the elderly or disabled, and robots that can take over dangerous jobs soon. In 2014, a

Japanese company revealed a robot that can read emotions, develop its own emotions, and help make humans happy. The robot named “Pepper” went on sale in 2015 and was sold out within a minute. This product is the first step to robot friends becoming a reality. In-home robots for the elderly or disabled may replace carers soon. In-home robots could take care of daily tasks, therefore enabling these people to be independent for as long as possible. So far, we have systems based on infrared cameras that detect when an elderly person falls but, we still have many advancements to make before these in-home robots become a reality. Bomb disposal is a job that is currently fulfilled by robots, they need a human pilot currently but as machine learning evolves, dangerous jobs like bomb disposal will be done by artificially intelligent robots. A job that may be replaced soon is welding. Advancements in machine learning are enabling robots to identify locations to weld. Without machine learning technology, this would not be possible.

The history of machine learning dates to the late 70s. In the late 70s and early 80s, machine learning research was focused on providing knowledge to the computer instead of teaching the computer how to learn. The machine learning industry then transitioned its goal from training AI (artificial intelligence) to solving problems in service providing. The machine learning industry's approach drifted towards use in probability theory and statistics. During the time machine learning transitioned, the focus was on neural networks, and it started to develop into a powerhouse during the 90s which was due to the internet's exponential growth.

Machine learning is likely to impact many fields including but not limited to data analysis, artificial intelligence in video games and, robotics. I chose to focus on these fields because each of them will show exponential growth in different facets. The field where I see the greatest range of uses is data analysis, I see the greatest entertainment growth within machine learning's advancements within video games, and I see the greatest innovation in robotics.

Machine learning's effect on data analysis will be a faster analysis of data, greater efficiency in data mining, and fast big data analysis. These advancements will impact many other fields such as business, targeted advertising, recommendation systems, and many others. These fields would benefit from the advances in machine learning even more than they already have. There have been many spectacular changes to each of these fields from machine learning, as it grows more these fields will also benefit to a higher degree.

Machine learning's effect on artificial intelligence in video games will provide a much greater user experience. In the past, many artificially intelligent players (bots) were terrible. Their attempts to defeat or help the player were futile and they would often cause the player(s) more harm than good if they were on the player(s) team. For instance, in Counter-Strike many players have complained about the bots in the game running into a firefight and dying instantly. The worst part of this is that when your rank climbs the bots stay at the same level of intelligence. So, if you are in a high rank and one of your players leave, the bot will still run into a firefight and die instantly. The only difference is that instantly is even more instantaneous. It seems impossible, but it somehow does happen even more instantaneously than instantly.

With the advancements in machine learning, this would no longer be an issue for not only Counter-Strike players, but other players would also have fewer 'rage quits,' improving their gaming experience and mental health.

The impact machine learning will provide in robotics is going to be the biggest momentous change of all, even bigger than the game-changing experience that advancements in machine learning will provide video games with. In a future where machine learning has been developed to a great extent for robotics, robots will be able to take over dangerous jobs, do our chores, and take care of us when we are unable to take care of ourselves. Robots taking over our most dangerous jobs will be excellent for preventing many people from having the horrible experience of dying at work. The biggest concern with robots taking over jobs is the impact on entry-level jobs, and jobs that do not require a high degree of cognitive function. These jobs being replaced will affect the economy, people who are getting their first jobs, and people who possess a low IQ.

The impact of advancements in machine learning specifically in data analysis will be a mixed bag for not only me but everyone else as well. The robustness of future video recommendation algorithms will be amazing, but the invasion of privacy that targeted advertising algorithms will breach will be terrible for me, and many others. We have already seen the effects of current targeted advertising algorithms breaching privacy. For example, the algorithm Facebook had would target ads based on your sexual orientation, religion, and race. These types of algorithms are despised by many people including many of my family and friends. The positive impact of machine learning in data analysis specifically in video recommendation algorithms will impact me in a better way because of the wide range of genres I like to watch. The current algorithms show me videos from only one or two genres even though I watch more than 10. I am nervous about the effect of machine learning advancements in data analysis, but I am excited for the future of the field as well.

Advancements in machine learning will heighten my gaming experience and many of my friends' experiences. I look forward to the day when bots in video games are indistinguishable from players. I am craving the day when machine learning reduces my and many others' frustration when it comes to playing alongside bots. The advancements in this field will impact me greater than others because of my love of playing games where bots are significantly included. The thought of one day getting to play alongside, or against a bot who is as good, or better than me, is one of the reasons I am so interested in machine learning.

My excitement towards advancements in machine learning in the field of robotics is because of the amazing applications it has in helping diverse types of people in numerous ways. For example, machine learning's development in robotics will help me never have to do chores, one of my biggest dreams. Many other people will have much more life-changing experiences with machine learning's development in robotics. I am excited for the older people and disabled people, not having a human carer would relieve some stress off them and is sure to enhance their quality of life. I look forward to seeing fewer people, die at work. Avoiding that experience

would be amazing. I also look forward to seeing people who feel alone buying a robot friend to keep them company, even if it is unorthodox. My friends and I will benefit from most of the advancements but, many of my friends' jobs may become redundant soon. The effect of these machine learning advancements in robotics will be good for many people, but the people who it will have harm will have a terrible time. The impact of these advancements closing in on jobs will have minimal effect on me when I get a job in the technology industry but, I fear for my friends and the many others who will be negatively affected by these advancements. I believe that there will be a solution to this problem soon after technology starts to eat away at entry-level jobs and cognitively simple jobs. I have hope that the advancements in machine learning in the field of robotics will serve people more than it tears them down.

In conclusion, machine learning is an interesting field that has many real-world applications. Teaching computers to learn is one of the greatest developments in the field of IT, and the benefits of this will be even greater soon. Machine learning advancements may cause some trouble but overall, they will benefit humanity in many amazing facets. I have dived into only three of these facets but, there are many more fields that have benefitted, and will benefit further, from the wonderful field that is machine learning.

Robots -

What does it do?

The Oxford dictionary gives two definitions to robots,

1. A machine that is made to look like a human and that can do some things that a human can do
2. A machine that can perform a complicated series of tasks automatically

In the past neither of those was a possibility, but that didn't stop Hollywood from making Terminator. Today the field of robotics is one that is in almost every aspect of our lives, and it's evolving in a fast pace.

In fact, a bot has been created that looks somewhat like a human, this robot, Ameca, is in the process of learning human-like facial expressions. Each of Ameca's modules/parts run independently, so just the head, or arm would work without major issues. At this point in time Ameca can detect people, track their faces, detect objects and react. Ameca can even move in a human-like manner.

Other than Ameca, some robots are being used or developed to do jobs that could be considered dirty, boring, or dangerous. Those kinds of jobs include -

- Manufacturing
- Assembly
- Packing
- Transport

- Earth / Space Exploration
- Surgery
- Weaponry
- Lab Research
- Burger Creation

Yes, a robot was made to create burgers. Some are even being used as emotional support for the lonely.

A few robotic projects of the past include -

- 2011 Burger Bot ->
 - A robot that can create a burger in less than 10 seconds, developed by Momentum Machines. It can "slice toppings like tomatoes and pickles immediately before it places the slice onto your burger, giving you the freshest burger possible." It was created as a garage project and gained years of hype.
- Google's worker robots ->
 - Google won a patent on March 31st, 2015, to create worker robots ...with personalities. The personalities are downloadable from the cloud. One robot can download and use many personalities so that they can interact with many different types of people.
- UR3 Arm ->
 - On March 23rd, 2015, Universal Robots, a Denmark-based robotics company revealed the UR3, a robot designed to handle repetitive manual tasks that weigh up to 3kg. It can replace its own parts and can glue, paint, solder, and weld.
- Saul Robot ->
 - In 2014, Xenex created a robot capable of handling the deadly disease Ebola. It does so with powerful pulses of highly electrical ultraviolet rays, these rays weaken the cells of the Ebola virus. This bot was named Saul Robot.
- Asus Zenbo ->
 - This robot was created on March 21st, 2016, and is essentially your tiny, friendly home assistant. It can autonomously roll around, as well as understand your verbal commands enabling it to do its tasks. An Asus Zenbo can be used to remember daily tasks, monitor surroundings to detect emergencies, and it can access smart home services.

Some robotic parts in creation include the artificial muscles, artificial skin, and the elastic electric cable.

Artificial Muscles

The artificial muscles are created with Carbon Nanotubes. These nanotubes are created with double electrode layers that are separated by a chitosan electrolyte layer consisting of an ionic liquid.

Response time has a value of 19 milliseconds, dozens of hundreds of available frequency ranges, large stress generating rate of 1080 Megapascals per second, and high mechanical output power density of 244 Watts per kilogram. This means that the artificial muscles have low power consumption, high flexibility, and a very long working life. In the future it's possible that robots can have reduced size and weight, this would make them much more human-like.

Notes -

- An electrolyte is a medium containing ion that is electrically conducting through ions, but not electrons.
- Electrodes are an electric conductor used to contact non-metallic parts of a circuit.
- Chitosan is a sugar that comes from the outer skeleton of crab, lobster, and shrimp.
- An ionic liquid is a salt in liquid state

Elastic Electric Cable

Rigid cables can limit movement, become jumbled, and their use has a tear 'n' wear limit. These issues can be solved with the use of elastic electric cables, a cable developed by Asahi Kasei Fibers, these cables follow specified shapes so that there is a lot less interference with a robot's movements. In terms of elasticity, the manufacturer compares them to human skin.

Artificial Skin

Laval University created the breakthrough technology of tactile artificial skin and is said to majorly advance human-robot cooperation. Factory robots are powerful, unemotional, and do all the tasks told to them, making them a big threat to factory workers and so to help with this, tactile artificial skin was investigated. The strength and speed of a robot mixed with the dexterity and analytical ability of a human would increase cooperation.

The skin used in prototyping is mainly used to interact with the robots, for example if you push gently on their artificial skin, they'll know that contact was made and deduce a command to perform. These prototype bots are made to assist the worker and respond to their requests "as if they were an extension of the body of the worker."

What is the likely impact?

All this robot talk will worry some about the future; "Will robots take over the world?", "Will they take over our jobs?" These are good questions and two that sci-fi has attempted to give the worst cases about for years; however, robots have been all around us for a while. They've been automated machines, and virtual assistants. So, if they were to "take over" it might not actually be that different, unless you're fond of entry or busy work, or they hate us.

It is possible that by 2030, 30% of all jobs would be done by robots, but is that a bad thing? That question is dependent on the type of work said robots would be doing, for example how many small or entry level jobs would be left by 2030? Will robots take over the high level and skilled jobs? Would they be able to do every job? Could they rebel? If an Arnold Schwarzenegger bot comes back from the future, you'll know we're screwed... that hasn't happened yet, so we should be fine. Maybe.

To answer the questions above, it has been estimated that 20 million jobs will be taken by robots by 2030, those jobs include, but are not limited to -

- Customer service executives
- Bookkeeping / data entry
- Receptionists
- Proof reading
- Manufacturing
- Pharmaceuticals
- Retail

There are some jobs that robots cannot do (yet), those include the creative, varied, or “human” jobs that an A.I. cannot just replicate -

- Human resources
- Public Relations
- Writers
- Scientists
- Psychiatrists
- Graphic Designing
- Software Developing

There are jobs that a robotic individual can do, and there are some they cannot, and that's not even going over if people prefer a more “human” touch. So, answering the question “Will robots take over our jobs?” is kind of difficult to answer, however based on the above evidence, it's likely that they will not take over every single job.

The smaller, entry level, or busy work is going to include the robotic, but again, some people do prefer a more “human” aspect from shopping at Big W or trying to find a specific tool at Bunnings. Making this a much, much more tricky question to answer, however it's a possibility that there will be *some* smaller level jobs remaining.

It is also possible that new jobs would be created, either to ensure that the robots work at optimal capacity, or to assist people who do prefer the “human” touch. Could be both.

How will this affect you?

Potentially, robots should be able to take many of the more repetitive jobs, as mentioned above. This would affect me or any of my family members, if by 2030 robots do in fact take over 20 million jobs. This would mean I or anyone else would have to learn more creative ways to earn money part-time or casually, however this doesn't affect me as much as it would the people reliant on working in retail, data entry, or even cooking (remember burger bot).

Another factor to consider is how the people reliant on the non-certificate jobs would be able to live, the economy doesn't exactly take robots taking over jobs into consideration and not everyone is skilled in the more "human", varied, or creative sections of work.

We cannot determine exactly how this would affect everyone yet, we can assume something would be planned but until it does happen, that's all we have. An assumption.

Creating an artificial intelligence with the body and capabilities of a human would be an incredible advancement, it could even lead to new and exciting discoveries about humans, the world around us, and even the universe, but an important alternative to consider is one in which we as human beings peak.

This does not answer how robots affect me, however.

I, personally, find the rise of robotics very interesting, so any new development would be exiting to hear about. Nevertheless, in my daily life, there would be quite a lot of changes. For example, I wouldn't have to serve in any potential wars, "no experience required" jobs would be far, far harder to get, I could hire burger bot, or, on a much more serious note, there will be a lot less things to do in life and that would make for a very boring existence.

If I had a home assistant bot, I wouldn't have to get up every time I wanted to turn the lights off, I could get a sandwich made for me instead of making one myself, or maybe I'd slowly start replacing all the mundane household tasks I'd have to do with a robot to do it for me. *Wouldn't that be nice.*

With all the free time I'd have, there could be more shows to binge, more movies to watch, more game to start losing interest in. To put it simply, my life would be easier but dull and no one wants that.

Project Idea -

Overview -

Motivation -

Description -

Tools, Tech, and Skills -

Outcome -

Feedback -

Spark Plus -

Member	Contributed (<input checked="" type="checkbox"/>)
Adam	
Jay	
James	
Daryl	
Levian	

Group Reflection -

- What went well
- What could be improved
- At least one thing that was surprising
- At least one thing that you have learned about groups

Answer each question separately (200 words), then write a group answer (400 words)