**PURPOSE** The purpose of this assignment is to describe some emerging technologies and their implications for, and potential uses by, various members of society as highlighted in the media.

**TASK** You will create a short annotated slideshow which is a video made up of a series of images and a voiceover. The video will be on **a topic related to an emerging area of research in computer science** AND **its relation to another field**. One of your sources must be an academic paper. You can access this from Google Scholar.

You may try these free online movie editors : animoto, picovico, kizoa ... or any other you are comfortable with

Step 1:

IN YOUR OWN WORDS, Write a one-to-two sentence description of each of the following emerging areas of research:

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| **Technology** | **Description** |
| Cryptography | “Cryptography is the technique to secure the information and prevent it from being read by the third person. Cryptography is made by the combining of mathematics theories, computer science theories, communication theories, electrical theories or physic theories. Cryptography is used in computer passwords, military communication, online payment and Bitcoin which is the new type of currency appeared in the last few years ago.“ |
| Data Mining/Big Data Analytics | “Data mining is the really complex processes which helps us to update the information as fast as we can. It’s job is discovering or analysing information in a big database with the involvement of database systems, statistics and the most important, machine learning in order to us give a conclusion based on the information that we gave the computer. Data mining is used some application such as determining the population of a place, the list of processes inside a country like electrical producing, the rate of change of money in order to give us a solution, conclusion or the fact in real time. “ |
| Bioinformatics | “ Bioinformatics is a field that develop tools and softwares for solving, analysing, and understanding the biological information. Bioinformatics includes the help of computer science, mathematics, engineering and biological information. They will collect, organize and use biological information to help people learn and answer question of biological field. The two fields that people use bioinformatics the most are genomics and proteomics “ |
| Artificial Intelligence | “Artificial Intelligence is the intelligence demonstrated by machines which is opposite to the natural intelligence demonstrated by the human. They are programed to think and minic like the human thinking behaviors. AI can learn and always collect the information around them, so they can solve a problem and maximize the chance of successfully. “ |
| Robotics | “Robotics is the field of engineering and science that contain computer science, electrical engineering mechanical engineering and others. In robotics, we will work to build the hardwares and other part of the robot system as well as design and make the computer systems for controlling, interacting using sensors and information processing. Robot is made in order to replace human in some work that require the higher yield in a specific of time such as making vehicles, manufacturing products or help the human in working with the dangerous environment like detecting bombs. Discovering the new area that we don’t have much information about that place. For example, exploring the new planet and gathering information about the land sample, water sample,etc… “ |
| Machine Learning | “Machine learning is a part of computer science which is embedded inside the AI. Machine learning help the computer to have the ability to think and improve themself through hand on experiences without the help of programer to develop a program for them to do a particular task. “ |
| Computer Vision/Image Processing | “Computer vision and image processing are two fields that help computers in extracting, analysing and processing images, so computer can gain the higher understanding level from digital images or videos. On the other words, computer vision and image processing help the computer can understand and take information from a picture or a video. Computer vision and image processing have a lot of application. One example of them is "face recognition" which is used by Apple as a new method to secure and unlock the new Iphone generation.“ |
| Human-Computer Interaction | “Human-Computer Interaction is the field of study that help the computer to communicate with the user. HCL combines the theories of computer science, behavioral science, design, media studies and a few more. We both know that there a a big difference between human and computer. Because of this difference, the developer have to make a way for the computer easy, convenient and effective to talk and work with the user successfully. The modern technology has reached to a new level of human-computer interaction and improved the feeling of using computer. Nowadays, people can actually talk with the computer by using a assistant such as Cortana from Microsoft, Siri from apple or Google assistant, and we can search any information by using voice. Honestly, I always ask Google if she like Siri or not lollllll. Cortana ??? Well I ask her to download Google chrome only haha.“ |
| Augmented/Virtual Reality | “Virtual reality is the new technology appeared a few year ago. Virtual reality makes a simulated environment or for the user to experience. VR will make a virtual 3D world for us by using the VR glasses and a smartphone or a tablet. VR technology can be used in the school, hospital, university, colleges,etc... for the study purposes. A doctor can use VR to investigate or make a virtual surgery without the patient. A university student can use VR for investigating the structure of a construction, underground, ice mountain,etc... VR technology is also used in game experience to make the gamer sense the real feeling of playing 3D games.“ |
| Cloud Computing | “Cloud computing is the delivery computing services such as servers, databases, softwares, games, social media services, storages, operating systems and more over the internet. We usually pay for cloud computing, so we can be able to use them.“ |

Step 2:

Select **ONE** from the above list to expand on. (a large paragraph, roughly half a page)

“Robotics is the field of engineering and science that contain computer science, electrical engineering, mechanical engineering and others. In robotics, we will work to build the hardwares and other part of the robot system as well as design and make the computer systems for controlling, interacting using sensors and information processing. Robot is made in order to replace human in some work that require the higher yield in a specific of time such as making vehicles, manufacturing products or help the human in working with the dangerous environment like detecting bombs, discovering the new area that we don’t have much information about that place. For example, exploring the new planet and gathering information about the land sample, water sample,etc… Using these robotics technology helps us not only in saving time and increasing the yield of job but also help us to work more effectively with the better and safer way to get the work done. Nowadays, the fast growing of AI also help us to make the new generation of robot which is more intelligent, closer to the human thinking and behaviors. In addition, AI help the robot be able to learn things around them and interact with the human. Medical robots and Nanorobots are the two important application of robotics, with these advanced technology, we can move further in finding and curing people from diseases, cancers or investigating human body as well as other complex problems that requires the exact actions with the lowest percent of risks. Robotics has been the an important role in our society. With the development of robotics, we have the opportunity to go further in any field and get the job done properly. “

Step 3:

Describe how it affects a particular field or industry and the implications for individuals and society in general.

(Examples of other fields/industries being affected in collaboration with the emerging area of research : Geology, economics, education, linguistics, public health, climatology, sociology, environment, psychology, astronomy, art/music, security/cyber security, transportation etc.)

“The rapid growing rate of robotics and AI have taken the economy to the new level. With the helps of Robotics and AI, we can do more work, manufacture more products in a specific amount of time with the really high quality. Robotics gives us the opportunity to serve the community better and more professionally. In the public health, We will hard to do the surgery or analyse the patient body in order to find the way to cure them or prevent them from other dangerous diseases, cancers or any threads without the help of robots and AI. Robots can be controlled to do the surgery to decrease the risks and all commandment we tell them to do are really exact that human can not do the same. Moreover, robotics gives the job for many people especially if they have mechanical engineering degree, computer science degree in order to design and make the robots that serve the human being in a particular field such as industrial field, medical field, educational field, environment or others. Nevertheless, the fast growing of robotics has taken the jobs of many worker over the past few years. Because robots are the machine and we, engineers, are those people make the programs for them, they can finish their tasks as we want them to do. In addition, the engineers just need to make the programs only one time, and they will embedded those programs inside the big number of robots. This looks like educate someone to do something, but in this situation, we are educate the big number of robots in about five minutes, and those robots can do any tasks at the same time, same speed and same yield. Is that sound great ? As time goes by, the world need a new generation of workers that can replace the human in some tasks. It takes away jobs of many people, but it encourages some people to study hard to become engineers. Furthermore, the benefits that robots bring back for us are not small. The development of robots saves many people life each year, increase the speed of economy, bring back a huge interest for many companies and industries and a lot of things more if we keep going to innovate and develop robots. Any development has their advantages and drawbacks, robotics is not out of this rule. However, if we consider the importance of robot in the future, we will see our society will be better with the help of robots.“

Step 4:

Sources used:

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Robotics references

<https://en.wikipedia.org/wiki/Robotics>

AI references

<https://en.wikipedia.org/wiki/Artificial_intelligence>

Surgery with robots

<https://www.mayoclinic.org/tests-procedures/robotic-surgery/about/pac-20394974>

Manufacturing with robots

<https://en.wikipedia.org/wiki/Industrial_robot>

Replace worker with robots

<http://www.bbc.com/news/world-us-canada-42170100>

Exploration of robots in space

<http://www.esa.int/Our_Activities/Space_Engineering_Technology/Automation_and_Robotics/Applications_for_Planetary_Exploration>

Why do the world need engineer to work with robot

<http://www.machinedesign.com/motion-control/whys-and-hows-becoming-robotics-engineer>

<http://blogs.ptc.com/2014/10/30/demand-for-robotics-engineers-grows/>

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Step 5:

Upload video or video link to Google Classroom

<https://animoto.com/play/h341lY3kD85hTqOKrqke7Q>

Robotics revolution.