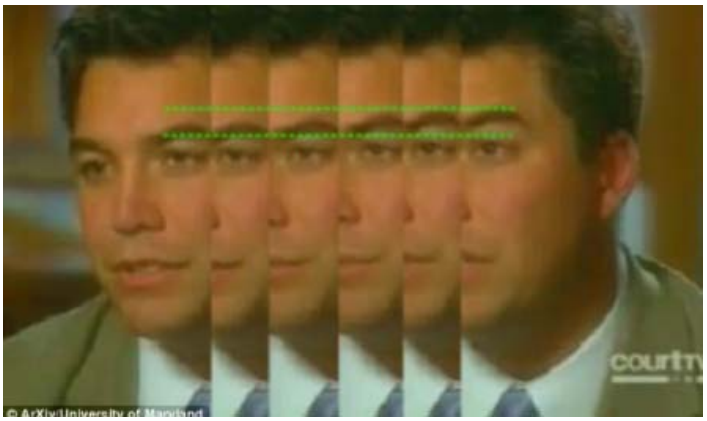
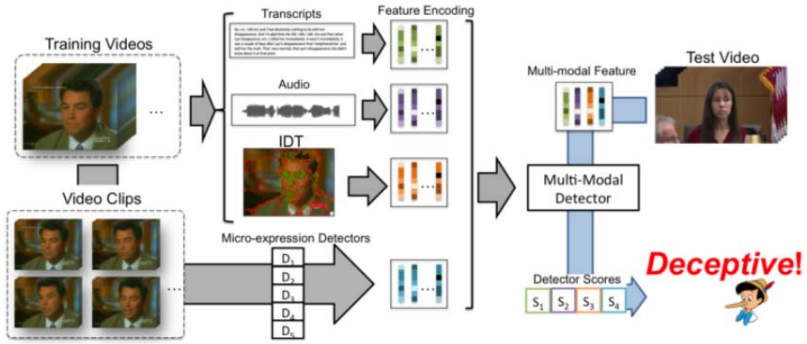
DARE CASE STUDY – Archisha

Introduction :



Deception Analysis and Reasoning Engine is an artificial intelligence system that can detect if a person is telling the truth. Artificial Intelligence is essentially where a computer program or an engine has the ability to think and learn. DARE comes under the umbrella of facial recognition. Facial Recognition has come a long way since 1960 when it was first created. The first instance of facial recognition was in 1960 when Woodrow Wilson Bledsoe created a system that could identify photos of faces manually, by using a RAND tablet, a device that people could use to input horizontal and vertical coordinates on a grid using a stylus that emitted electromagnetic pulses. The system could be used to manually record the coordinate locations of various facial features including the eyes, nose, and mouth. This set of points was then saved in database and when the system was given a new photograph of a person, it was able to find the image from the database that was the closest match to the individual. Fast forward 28 years, in 1988 L. Sirovich and M.Kirby were two mathematical professors from Brown University, who started by applying linear algebra to facial recognition, which then became known as the Eigenface approach. And most recently, in 2017, Apple added the feature of facial recognition to their new iPhone X , as a method to unlock the phone. So over the last 60 years, facial recognition has changed significantly, and the uses of facial recognition have changed drastically as well.

Focus case :



Deception Analysis and Reasoning Engine is an artificial intelligence system that can identify the truthfulness of the individual. The technology essentially is trained to identify and classify human micro-expressions, such as “lips protruded”, “eyebrows frown” and “eye blinks’ along with analysing vocal patterns and inconsistencies to signify whether someone is lying or not. The engine itself was created by researchers from the University of Maryland and Dartmouth College who trained the system by using videos of people in court. In the training stages, the engine starts off by analysing the transcripts, the audio and the IDT. This process was repeated with 15 other training videos. Micro expression detectors were formed and were able to then detect where people were deceptive or not. After DARE had watched 15 courtroom videos, the system was able to indicate whether someone was lying. The results have shown that the engine could spot 92% of micro-expressions.

DARE first surfaced in December of 2017. At the moment, it is only being tested with courtroom trials. It has not been fully implemented as of yet.

Analysis:

As of now, the intended purpose and use of Deception Analysis and Reasoning Engine is for courtroom and law enforcement. The engine will essentially determine whether the various members of the trial who are giving testimonies are actually speaking the truth.

Due to the high accuracy rate of the engine (92%), DARE could essentially eliminate inconsistencies and bias in the courtroom, however, we do not know as of now if there would be any human interference in the decision making process, in case of any glitches or obvious mistakes made by the engine.

There are multiple benefits to implementing DARE as a border security measure. We could essentially put an end to transnational crimes and prevent those from coming into countries who have ulterior motive and could be a threat to the people of that country. This could be done by interviewing the individual of interest and identifying the individual's' true intentions before they enter a country. An example where this could have been implemented was in New Zealand. On March 15th, of this year, Australian man Brenton Tarrant murdered 49 people in a Christchurch Mosque. If the New Zealand airports had this system in place when Tarrant was travelling to the country, then DARE would have been most likely been able to detect the lack of truthfulness, and maybe this tragedy could have been prevented. DARE could essentially be used in day to day life as well. A great example given by the Harvard School of Business was 'Imagine a world with google glasses that has lie detection application inside. Relationships between individuals and businesses will be radically transformed.' It would essentially be impossible to get away with telling a small white lie and interviews would be significantly more challenging, as you would not be able to bend the truth, and say that you have experience in something that you don't.

However, there are also some ethical implications in the widespread use of DARE. This engine could even be classified as a violation of privacy and be misused at some point. The engine could be placed in a google glass and make an individual reveal incredibly private information or it could be used to collect data about various people in a very easy manner. This is a major violation of privacy as the person being taken advantage of in this situation would be completely unaware of what has happened and would also have no evidence to support their case.

On the whole, there are various positive impacts of the implementation of DARE. we could completely eradicate transnational criminal activity; the usage of DARE could also have various ethical implications as there are no rules or laws in place for this engine as of now.

Conclusion:

The implementation and usage of DARE technology would have multiple benefits for ironman and humanity as a whole. Ironman – also known as Tony Stark is a billionaire industrialist and inventor. He is thoroughly interested in technology and has devoted his life to saving the world.

To begin with, the implementation of this technology could act as an additional security measure to all his towers around the world. The enactment of this technology would prevent individuals from joining his company or even entering his tower, who could potentially have ulterior motives. Thus preventing attacks on Ironman and the rest of the Avengers, along with avoiding betrayal from

existing members of the Avengers or other allies. This change would make the missions of the Avengers substantially easier, as many of their missions arise as a result of betrayals and deception.

This engine could also be implemented into ironman's suit and assist him when he is cross examining various people while he is out on the field and investigating. This would be a major added benefit and would make his investigations along field research significantly less difficult. He could reduce the amount of time spends intimidating or threating people to acquire accurate information, and could potentially make his missions more efficient and time effective, as he would be spending less time on finding the correct information and could use more of that time to help save the world, and all of humanity.

The engine could also be placed inside his glasses, so even if he is not specifically on a mission, he would also be able to accumulate information, even if that wasn't his original intention. Not only is this a benefit for ironman, but this could also be an added benefit for the police force. The cross examination and questioning process would be significantly easier, along with more time efficient. It would also make the court rulings more accurate and prevent people from being framed.

Overall, Ironman can benefit from the inculcation of the Deception Analysis Reasoning Engine is various ways, as his missions would become significantly more time efficient, his towers would be better protected from enemies along with the fact that he could gather data and help the police force simultaneously.

Reflect on one aspect of the research process:

The overall 'searching' aspect of the research process was fairly difficult. Due to the fact that the area of artificial intelligence that I was researching was very new and very little information about it, I kept coming across various news articles with the exact same information. However, after our workshop with Ms Sharman in researching techniques, I found the process somewhat easier. By specifying what I was exactly looking for in search engines and databases, I was able to find more specific and accurate results. Google Scholar again provided more specific articles, however, the complexity of these articles was far beyond my understanding, and did not add to me case study. These obstacles forced me to think outside the box, and research articles from university blogs as well to acquire more information. Overall, I struggled to find information, however, after doing some additional research and adjusting my researching technique, I was able to find what I was looking for.

Reflect on one aspect of project management:

Setting goals is an aspect of the project management process that I am still working towards and getting better at. Throughout this process, I would do some work on my case study maybe once in a week, but it wasn't something that I was consistently doing every other day or even had a specific plan for, as result I had a large pile of work sitting before me, one week before the task was due. However, I was able to make a structured plan that ensured that I made some progress on this at least every other day, and that ensured that I was able to complete the assignment on time. As a result of my planning, the development of my project was very slow to begin with, but as a result of my planning, there was a significant increase in the rate that I was working at near the end of the assignment.

Annotated Bibliography

DAVIS WEST JESSE, 'A BRIEF HISTORY OF FACE RECOGNITION' (1 August 2017). FaceFirst, < https://www.facefirst.com/blog/brief-history-of-face-recognition-software/ > accessed 19 March 2019.

Galeon Dome, 'A New AI That Detects “Deception” May Bring an End to Lying as We Know It' (9 January 2018), Futurism, < https://futurism.com/new-ai-detects-deception-bring-end-lying-know-it > accessed 7 February 2019 – This was the very first website I found, that inspired me to look further into this area of artificial intelligence. The article is brief and concise, along with easy to understand , thus it acted as a nice stepping stone for me to further explore how the DARE engine actually worked.

Richards Alexandra, 'Artificial Intelligence system could be used to detect if people are lying in court'. (10 December 2017), Evening Standard, < https://www.standard.co.uk/news/world/artificial-intelligence-system-could-be-used-to-detect-if-people-are-lying-in-court-a3724221.html >. accessed 11 March 2019.

Sebin Ayhan, 'DARE TO LIE?'. (9 April 2018), Digital Initiative, < https://digit.hbs.org/submission/dare-to-lie/ > accessed 11 March 2019. – I found this website the most useful out of all the websites that I had seen , as it provided me with images and statistics so I could further understand how effective my chosen area of artificial intelligence actually is. The blog also applied the DARE to various scenarios where it could be used , which then supported the argument that I was trying to make.

Gupta Shashank, 'Practical Use Cases of Facial Emotion Detection Using Artificial Intelligence' (30 April 2018), Dzone, < https://dzone.com/articles/practical-use-cases-of-facial-emotion-detection-us > accessed 14 February 2019.