DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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Year/Sem – B.Tech III-I   **Section -** A

Subject – Artificial Intelligence   **Faculty-** Dr.Shoe Kumar

Case Study on Artificial Intelligence

Artificial Intelligence:-

Computers are superfast in calculation or data analysis but they don't have intelligence like human beings. Computer only gives result ,if they have data. If any data is missing ,they are unable to give output. So we give intelligence to computer . So they can predict future data by historical data .This is called Artificial Intelligence.
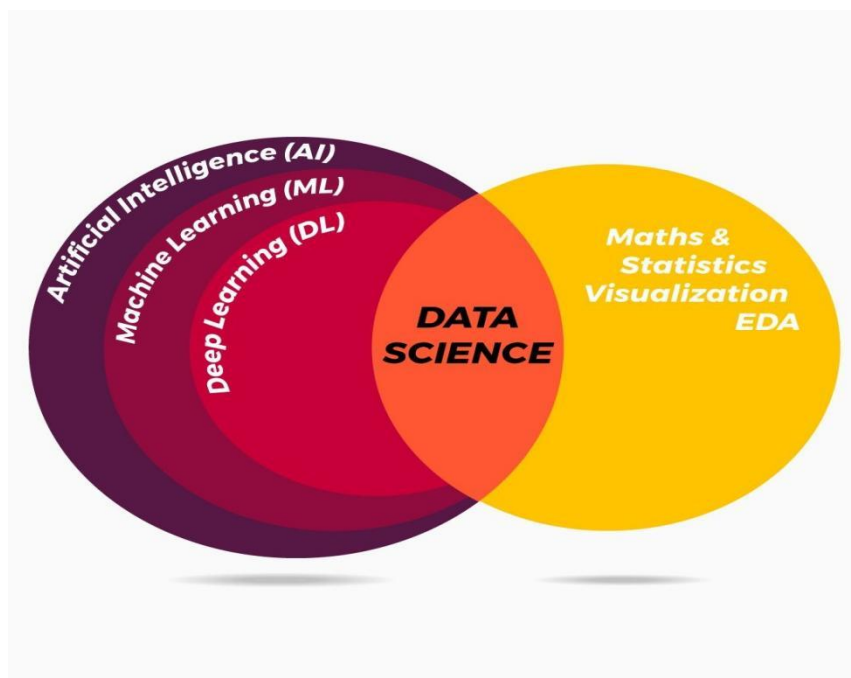
By the help of Artificial Intelligence ,AI systems will typically demonstrate at least some of the following behaviours associated with human intelligence: planning,

learning, reasoning, problem solving, knowledge representation, perception, motion, and manipulation and, to a lesser extent, social intelligence and creativity.

How Companies use AI/ML

McDonald's

McDonald's, one of the biggest fast-food chains on the planet, is one company that needs no introduction. For a long time, the fast-food chain did not see the need to implement AI and Big Data but upon seeing the success that their competitors were having, they revised their strategy. As the largest fast-food chain in the world, serving close to 70 million people daily, it's clear that it generates a lot of data. Moreover, they have leveraged that data in many ways as shown below:-

1. **Use of digital menus:-** Digital menus are a common phenomenon these days, but McDonald's has taken it a notch higher by introducing digital menus that change based on real-time data analysis using AI. The menus vary also based on parameters like weather and time of day. Due to this innovation, they recorded a 3% increase in sales in Canada.
2. **Customer Experience:-** McDonalds are leveraging the application to make it a win-win situation for them and their clients. Users of their app get various benefits like:

- Exclusive deals on the app.
- Avoiding long queues at the counter and drive-thru

On the other hand, when customers pay through the application, McDonald's not only got money but also vital customer data that includes metrics like:

- Where and when the client goes to the restaurant
- The frequency of their visits
- Preference between a drive-thru or a restaurant
- By using this data, McDonald's can make recommendations and promote deals to increase sales. As a result of this data, they have noticed a more than 30% increase in sales in Japan for clients that used the app.

Autonomous ships

Most people know that the future lies in autonomous automobiles, but not many people know that there are also plans to launch autonomous ships. This is due to a collaboration between **Google and Rolls-Royce to create autonomous and smart ships**. Rolls-Royce will be using the **Machine Learning Engine on Google Cloud** in its applications to make its **vision of smarter** and autonomous ships come true.

At first, AI algorithms will be trained using machine learning to identify objects that can be encountered at sea and classify them based on hazard they may pose. The Machine learning algorithms that are currently being used by Google Voice and image search applications. They will also be augmented by massive data sets produced from various devices like sensors, cameras, and cameras on vessels. By combining the cloud-based AI and Big Data application enable data to be shared in real-time to any ship and also to on-shore control centres.

Healthcare

- One of the issues that many healthcare systems face is matching staffing volumes to patient numbers. At one time you can have very few patients and a huge staff roster. During other times, you have an overflow of patients and a strained workforce. **So how do you solve this problem?**
- Embrace AI and Big Data by following the example set by some hospitals in Paris. Four hospitals in Paris have managed to leverage AI and Big Data to enable nurses, doctors, and hospital administrators to forecast admission and visit rates for two weeks. This enables them to draft in extra staff when they expect high patient volumes leading to reduced wait times and better-quality care. **So how does the system work?**
- Using an open-source AI Analytics platform, the hospitals compiled admission data for the last ten years and external data sets like flu patterns, weather and public holidays. The insights were then used to predict admission rates at different times. Apart from just being used to predict admission rates, such data can be used to reduce wastage and enhance healthcare delivery by forecasting the demand for services.

Security

When it comes to security screening, most of us expect that you will find a security person screening you individually using a face-to-face approach. Although customs and immigration officers are highly trained to detect someone that is lying about their intentions mistakes do still happen. Also, there is the fact that **humans get tired** and can be distracted leading to errors. **So how do we avoid such human errors?** Apply AI and Big Data to screen passengers.

Homeland security has developed a new system called **AVATAR** that screens people's facial **expressions and body gestures** and **picks up small variations that may raise suspicion**. The system has a screen with a **virtual face that asks the passenger questions.** It monitors the **person's responses for changes in voice tone as well as differences in what was said**. Data collected is compared to a database and compared against factors that show someone might be lying. If the passenger is flagged as being suspicious then they are highlighted for further inspection.