**HOMEWORK1**

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**1. There are different interpretation of artificial intelligence in different**

**contexts. Please elaborate on the artificial intelligence in your eyes.**

- able to perceive and react to the world in front of it as it performs limited tasks.

- able to store past data and predictions to inform predictions of what may come next.

- able to make decisions based on its perceptions of how others feel and make decisions.

- able to operate with human-level consciousness and understand its own existence.

**2. Artificial intelligence, machine learning and deep learning are three concepts often mentioned together. What is the relationship between them? What are the similarities and differences between the three terms.**

| **Artificial Intelligence** | **Machine Learning** | **Deep Learning** |
| --- | --- | --- |
| AI stands for Artificial Intelligence, and is basically the study/process which enables machines to mimic human behaviour through particular algorithm. | ML stands for Machine Learning, and is the study that uses statistical methods enabling machines to improve with experience. | DL stands for Deep Learning, and is the study that makes use of Neural Networks(similar to neurons present in human brain) to imitate functionality just like a human brain. |
| AI is the broader family consisting of ML and DL as it’s components. | ML is the subset of AI. | DL is the subset of ML. |
| AI is a computer algorithm which exhibits intelligence through decision making. | ML is an AI algorithm which allows system to learn from data. | DL is a ML algorithm that uses deep(more than one layer) neural networks to analyze data and provide output accordingly. |
| Search Trees and much complex math is involved in AI. | If you have a clear idea about the logic(math) involved in behind and you can visualize the complex functionalities like K-Mean, Support Vector Machines, etc., then it defines the ML aspect. | If you are clear about the math involved in it but don’t have idea about the features, so you break the complex functionalities into linear/lower dimension features by adding more layers, then it defines the DL aspect. |
| The aim is to basically increase chances of success and not accuracy. | The aim is to increase accuracy not caring much about the success ratio. | It attains the highest rank in terms of accuracy when it is trained with large amount of data. |
| Three broad categories/types Of AI are: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI) | Three broad categories/types Of ML are: Supervised Learning, Unsupervised Learning and Reinforcement Learning | DL can be considered as neural networks with a large number of parameters layers lying in one of the four fundamental network architectures: Unsupervised Pre-trained Networks, Convolutional Neural Networks, Recurrent Neural Networks and Recursive Neural Networks |
| The efficiency Of AI is basically the efficiency provided by ML and DL respectively. | Less efficient than DL as it can’t work for longer dimensions or higher amount of data. | More powerful than ML as it can easily work for larger sets of data. |
| Examples of AI applications include: Google’s AI-Powered Predictions, Ridesharing Apps Like Uber and Lyft, Commercial Flights Use an AI Autopilot, etc. | Examples of ML applications include: Virtual Personal Assistants: Siri, Alexa, Google, etc., Email Spam and Malware Filtering. | Examples of DL applications include: Sentiment based news aggregation, Image analysis and caption generation, etc. |

**3. After reading the artificial intelligence application scenarios in this chapter, please describe in detail a field of AI application and its scenarios in real life based on your own life experience.**

Chat GPT is an AI chatbot auto-generative system created by Open AI for online customer care. It is a pre-trained generative chat, which makes use of (NLP) Natural Language Processing. The source of its data is textbooks, websites, and various articles, which it uses to model its own language for responding to human interaction.

This chatbot system provides information and responses to inquiries through AI. The popular version of chat GPT is the GPT-3 model.

The main feature of Chat GPT is generating responses like those humans would provide, in a text box. Therefore, it is suitable for chatbots, AI system conversations, and virtual assistants.

However, it can also give natural answers to questions in a conversational tone and can generate stories poems andm ore. Moreover, Chat GPT can:

* Write code
* Write an article or blog post
* Translate
* Debug
* Write a story/poem
* Recommend chords and lyrics

To make the AI carry out one of these demands, all you need to do is type the command into the chatbot.

**4. Which chip is for deep neural networks and Ascend AI processors. Please brief these four major modules.**

The chip is HUAWEI Ascend 910. The logic architecture of Ascend AI processor hardware is mainly composed of four modules, i.e., Control CPU, AI computing engine (including AI Core and AI CPU), multi-level system-on-chip cache or Buffer, Digital Vision Pre-Processing (DVPP).

**5. Based on your current knowledge and understanding, please eleborate on the development trends of artificial intelligence in the future in your view.**

Many job will be replaced by AI, because AI can, within the routine task, learn to optimize itself. And the more quantitative, the more objective the job is separating things into bins, washing dishes, picking fruits and answering customer service calls those are very much scripted tasks that are repetitive and routine in nature. In the matter of five, 10 or 15 years, they will be displaced by AI.