

BÁO CÁO MÔN TRÍ TUỆ NHÂN TẠO

TUẦN 1

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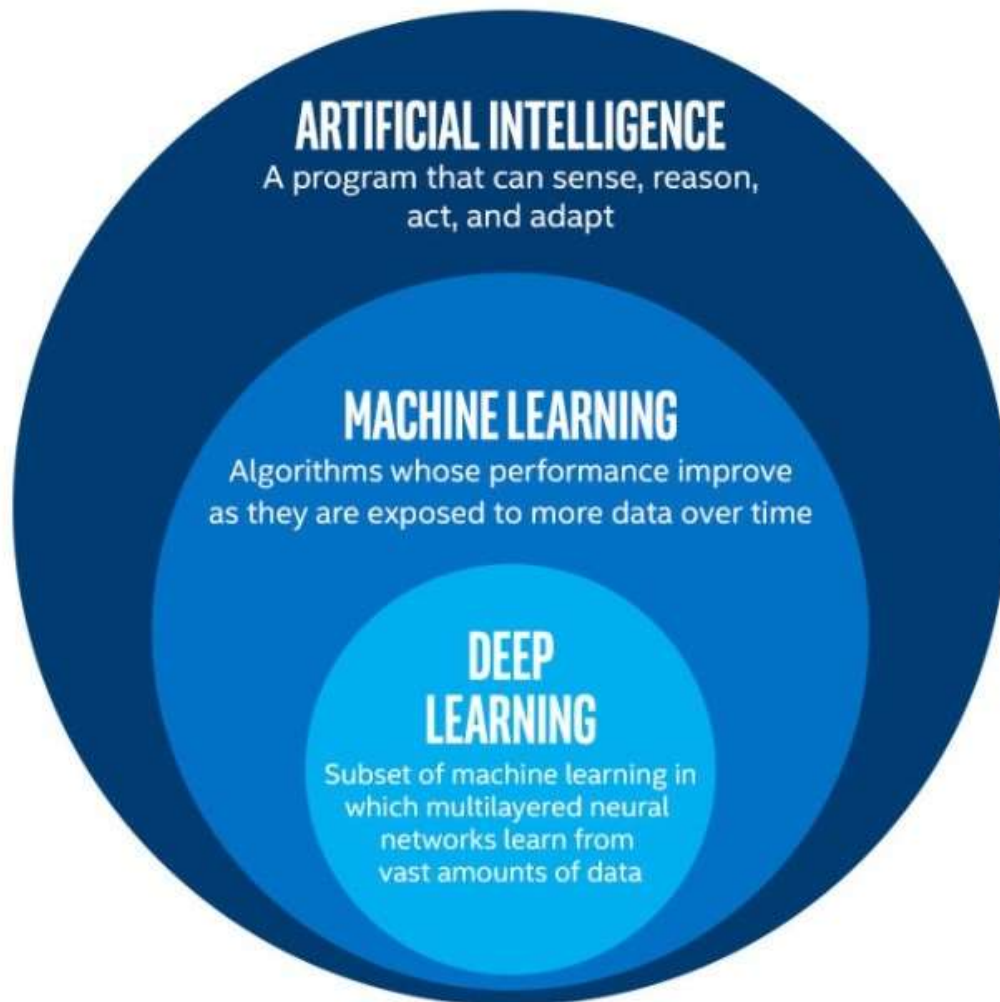
1. There are different interpretations of artificial intelligence in different contexts. Please elaborate on the artificial intelligence in your eyes.

- The artificial intelligence (AI) landscape has evolved significantly from 1950 when Alan Turing first posed the question of whether machines can think. Today, AI is transforming societies and economies. It promises to generate productivity gains, improve well-being and help address global challenges, such as climate change, resource scarcity and health crises. Yet, as AI applications are adopted around the world, their use can raise questions and challenges related to human values, fairness, human determination, privacy, safety and accountability, among others. This report helps build a shared understanding of AI in the present and near-term by mapping the AI technical, economic, use case and policy landscape and identifying major public policy considerations. It is also intended to help co-ordination and consistency with discussions in other national and international fora.

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?

- Relationship:



- The difference between AI vs machine learning vs deep learning:
Contrary to AI, machine learning and deep learning have very clear definitions. What we considered AI changes over time. For instance, object character recognition used to be considered AI, but it no longer is. However, a deep learning algorithm trained on thousands of handwritings

and able to learn to convert those to text would be considered AI by today's definition.

Machine learning and deep learning power various applications, including natural language processing applications, image recognition programs and classification platforms. The technologies enable enterprises to augment their workforce by allowing intelligent machines to tackle mundane, repetitive tasks, while freeing up employees to focus more on creative or more high-thinking jobs.

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.

- **Artificial Intelligence in Autonomous Vehicles:**

Long-range radar, cameras, and LIDAR, a lot of advancement has been made in the autonomous vehicle segment. These technologies are used in different capacities and each of them collects different pieces of information.

The information is of no use unless it is processed and any form of insights can't be derived.

This is where artificial intelligence is used and where it can be compared to the human brain. Some of its usage in autonomous vehicles are:

- Directing the car to the gas station or recharge station when it is running low on fuel.

- Adjust the trip's directions based on known traffic conditions to find the quickest route.
 - Incorporate speech recognition for advanced communication with passengers.
 - Natural language interfaces and virtual assistance technologies.
4. Which chip is for deep neural networks and Ascend AI processors? Please brief these four major modules.
- CPU is chip for deep neural networks and Ascend AI processors
 - **CPU:**
The central processing unit (CPU) is the main chip in your computer, phone, tv, etc., that is responsible for distributing instructions throughout the components on the motherboard.

The CPU is considered to be the “brain” of the computer and is the most versatile of the chips we are covering. However, this versatility does come at a cost, and because it is meant to be the “jack of all trades” it will consume more power and be slower at some functions over the more specialized chips.

- **GPU:**
The graphics processing unit (GPU)
The GPU is typically looked at to simply process graphics and output them to a screen. However, in recent years due to their parallel processing and high throughput capabilities, they have been incorporated into many other functions.

To break that down a little further, the GPU will divide complex problems into millions of separate tasks to solve them at the same time.

When cryptocurrency mining gained popularity, the GPU was used as a means of solving the complex mathematical algorithms used.

- **FPGA:**

The Field Programmable Gate Array (FPGA) is also a silicon-based semiconductor, but it is based on a matrix of configurable logic blocks (CLB) that are connected by programmable interconnects.

This means that the FPGA can be programmed and then reprogrammed to a desired application or function.

The programming of the FPGA actually defines the hardware function of the device. When the function needs to change, the FPGA can be simply reprogrammed.

Because the FPGA is programmed/customized to the exact specifications of an algorithm, it can be faster and consume less power than processors with higher clock speeds. However, any time the function needs to change it must be reprogrammed.

- **ASIC:**

The Application-Specific Integrated Circuit (ASIC) is a silicon chip designed for one specific logic function.

The ASIC can only perform the task it was built to perform. It cannot be changed.

Because of this, ASICs are typically used in a product that will have large production numbers and are not used for debugging a system.

The ASIC enables a significant amount of circuitry to be incorporated into a single chip. This keeps the cost lower, on bulk runs, over using other technology.

The ASIC will also consume less power for computing capability when compared to the aforementioned chips and have a much smaller size. An ASIC will also be cheaper to assemble and more reliable (because there are fewer parts).

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

- In the future, we'll see even more of our jobs being outsourced to AI. Artificial intelligence can now do amazing things like read, write, speak, and smell that previously only humans could do. That frees up humans to do the things we do best on the jobs, like being creative and practicing emotional intelligence.

Language modeling is the process that allows machines to understand and communicate with us in ways we understand. We can even use it to take natural human language and turn it into computer code that can run programs and applications.

The good news is that artificial intelligence can be a helpful weapon against cybercrime, because AI is quite good at analyzing network traffic and recognizing patterns that might suggest nefarious intentions.

Artificial intelligence can pull off creative tasks, including designing logos, songwriting, creating infographics, and writing blog posts. The creative side of AI will simply explode over the coming years as we see new capabilities emerging.