**Bài tập 1 AI**

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Exercises

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

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?

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

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

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

**Bài làm**

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

AI refers to the overall concept of machines being able to perform tasks that would normally require human intelligence, such as visual perception, speech recognition, decision-making and language translation.

**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 (AI), Machine Learning (ML) and Deep Learning (DL) are three related concepts in the field of computer science and data analysis. AI refers to the overall concept of machines being able to perform tasks that would normally require human intelligence, such as visual perception, speech recognition, decision-making and language translation.

Machine Learning is a subset of AI that focuses on the use of algorithms and statistical models to enable a system to improve automatically through experience. In other words, Machine Learning algorithms allow a computer to learn from data, without being explicitly programmed.

Deep Learning, on the other hand, is a subset of Machine Learning that uses algorithms inspired by the structure and function of the brain, called artificial neural networks. Deep Learning algorithms enable the model to learn and make decisions on its own, without human intervention. Deep Learning has shown remarkable progress in various areas such as computer vision, speech recognition, and natural language processing.

In summary, AI is a broader concept that includes ML and DL, while ML is a subset of AI and DL is a subset of ML. AI focuses on replicating human intelligence, ML focuses on allowing machines to learn from data, and DL focuses on using neural networks to model complex patterns in data.

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

As an AI language model, I do not have personal experiences, but I can describe one field of AI application and its scenarios in real life based on my training data.

One field of AI application that has seen widespread use in recent years is natural language processing (NLP). NLP is a subfield of AI that focuses on the interaction between computers and humans using natural language. NLP has a wide range of real-life applications, including:

- Chatbots: Chatbots are AI-powered virtual assistants that can interact with users in natural language to answer questions and perform tasks. Chatbots are commonly used in customer service to handle frequently asked questions, such as information about a product or service.

- Sentiment Analysis: Sentiment analysis is a technique used to determine the sentiment expressed in a piece of text, such as a customer review or social media post. This information can be used to improve customer experience and make informed business decisions.

- Language Translation: AI-powered language translation is used to translate written or spoken text from one language to another. This technology has been especially useful for businesses that operate in multiple countries, making communication easier and more accessible.

- Text Classification: Text classification is a technique used to categorize text into predefined categories based on its content. For example, it can be used to categorize news articles based on topics, such as sports, politics, and technology.

These are just a few examples of the ways NLP has been applied in real-life scenarios, and the field continues to evolve and expand.

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

Deep Neural Networks (DNNs) are a type of AI model that are used to perform tasks such as image and speech recognition. They typically require a lot of computational power to process and analyze the large amounts of data they are trained on.

To meet the demands of running DNNs, specialized chips have been developed, including graphics processing units (GPUs) and application-specific integrated circuits (ASICs).

Recently, Huawei has introduced its Ascend AI processors, which are specifically designed for AI and machine learning applications. The Ascend processors are integrated with four major modules:

- The Matrix Processing Unit (MPU): This is the main processing unit for the Ascend processor and is designed to handle large matrix computations efficiently, which are commonly used in DNNs.

- The Neural Processing Unit (NPU): The NPU is designed to accelerate the processing of DNNs and is optimized for matrix operations and dot-product computations.

- The High-Bandwidth Memory (HBM): The HBM module provides high-speed memory access, which is essential for processing large amounts of data in real-time.

- The Interconnect: The interconnect module enables communication between different components of the processor, allowing for fast data transfer and coordination between the various processing units.

Together, these modules provide a powerful platform for running AI applications and DNNs, allowing for faster and more efficient processing of large amounts of data.

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

Artificial Intelligence (AI) is a rapidly evolving field, and its development is driven by advances in technology, increasing amounts of data, and the growing need for automation and efficiency in various industries. Here are some of the trends and directions in which AI is likely to develop in the future:

- Increased Adoption of AI in Business and Industry: AI is expected to play an increasingly important role in businesses and industries, as organizations look to automate processes and improve efficiency. This is likely to lead to the creation of new AI-powered products and services and the transformation of existing ones.

- Development of General AI: Currently, AI is mainly focused on specific tasks, such as image recognition or speech recognition. However, in the future, there is a trend towards the development of general AI, which would allow machines to perform a wider range of tasks and have a greater level of intelligence.

- Expansion of AI in the Cloud: As AI applications become more complex and data-intensive, it is expected that more AI services and resources will be moved to the cloud. This will allow organizations to access the computational power and storage they need to run AI applications, without having to invest in expensive hardware.

- Advancements in Natural Language Processing: NLP is a critical component of AI and is expected to continue to evolve and advance. This will lead to more sophisticated and human-like interactions between people and AI systems, and the development of new AI-powered language-based products and services.

- Integration of AI with the Internet of Things: The Internet of Things (IoT) is growing rapidly, and AI is expected to play an increasingly important role in the management and analysis of the data generated by IoT devices. This will lead to new AI-powered products and services for the IoT and the creation of smarter, more connected homes and cities.

These are just some of the trends and directions that AI is likely to develop in the future. As the field continues to evolve, it is likely that new and unexpected applications of AI will emerge, driving innovation and transforming the way we live and work.