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FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

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MULTIMEDIA DATABASE

REPORT LECTURE WEEK 5:

QUERYING MULTIMEDIA DATA

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I gained a lot of knowledge about the background of artificial intelligence and how computers interpret images from Dr. Fei-Fei Li's talk. From Dr. Li's presentation, she talked about a big collection of images called ImageNet, which helped computers learn from pictures and got AI going. Dr. Li also mentioned how remarkable it is for human eyes to identify objects in photos with ease and speed. But first, it was quite challenging to educate computers to perform the same task. It was attempted to train them to see objects, but the results were not particularly promising.

Then, they began utilizing a distinct technique known as machine learning. When they let the computers to learn on their own, the outcome was considerably better. Additionally, they discovered more effective methods for educating computers about the various components of photos. Dr. Li also talked about other things computers can learn from pictures, like understanding what's happening in scenes or how things are related to each other. In short, Dr. Li's presentation demonstrated to me how much computers have learned—and still need to learn—about images. It's like learning a whole new language from them to improve our comprehension of the outside world.

Next, in terms of finding things in big collections of pictures and videos, Dr. Li talked about how computers can describe pictures to help us search for them better. This makes it easier for us to find what we're looking for without having to type in specific words or labels. Dr. Li also mentioned how this technology can help people who can't see well. By adding descriptions to pictures, it makes it easier for them to understand what's in them. It's like having someone tell you what's in a picture if you can't see it clearly yourself. Using Dr. Li's ideas, we can make searching for things on the internet easier and help more people understand pictures, making the digital world a better place for everyone.

Additionally, Dr. Li's insights shed light on the continuous advancements in AI and its potential to transform various aspects of our lives. By harnessing the power of machine learning and image recognition, we can expect further enhancements in technology, leading to more efficient search engines, improved accessibility for individuals with disabilities, and a richer digital experience for all users. As we continue to explore the possibilities of AI and computer

vision, Dr. Li's contributions serve as a guiding beacon, inspiring us to innovate and create a more inclusive and accessible digital world.

Moreover, image captioning technology has become an integral part of our daily lives, especially in activities like browsing for products on popular e-commerce platforms such as Shopee, Lazada, and Carousell. Additionally, tools like Google Lens have proven to be invaluable for online information retrieval by capturing text within images and providing relevant data based on the textual content. Nowadays, numerous applications leverage image captioning capabilities to facilitate searches, with platforms like Pinterest being particularly favoured by teenagers seeking insights into fashion trends and aesthetic imagery.

On the other hand, the incorporation of image captioning technology into platforms like Shopee enhances accessibility for individuals with visual impairments. Imagine browsing through product images to make purchasing decisions; for visually impaired users, understanding product details solely through images can be challenging. By automatically generating descriptive captions for product images, Shopee enables visually impaired users to navigate the platform effectively and make informed decisions based on textual descriptions provided alongside the images.

Nevertheless, image captioning streamlines the browsing experience for all users by enabling natural language searches for products. Instead of relying solely on visual cues or keywords, users can describe the products they are looking for in detail, such as "red cotton t-shirt," allowing the platform to retrieve relevant product images with corresponding captions. This not only benefits visually impaired users but also enhances the search process for sighted users, making it more efficient and user-friendly.

Similarly, on Pinterest, image captioning acts as a helpful assistant when searching for specific items. By providing descriptive captions for images, users can easily understand the content without guesswork. For example, a caption might describe a stylish outfit as "trendy eid fashion 2024," providing clarity and enhancing the overall searching experience. In essence,

image captioning makes searching for fashion inspiration or home decor ideas on Pinterest much easier and more enjoyable for users of all abilities.

In a nutshell, Dr. Fei-Fei Li's illuminating discourse on artificial intelligence (AI) and image captioning has provided invaluable insights into the profound impact of these technologies on our daily lives. From the foundational role of ImageNet in initiating the AI revolution to the transformative potential of machine learning in enhancing computer vision, her presentation has highlighted the remarkable progress and ongoing challenges in this dynamic field.

Accordingly, the integration of image captioning technology into popular digital platforms like Shopee and Pinterest underscores its practical applications in improving accessibility, enhancing user experiences, and revolutionizing the way we interact with visual content online. By providing descriptive captions for images, these platforms empower users to navigate vast collections of multimedia data more efficiently and inclusively, fostering a more accessible and inclusive digital landscape for all.

As we continue to harness the power of AI and image captioning, Dr. Li's insights serve as a guiding light, inspiring us to innovate and create solutions that enhance the accessibility, usability, and inclusivity of digital technologies. With ongoing advancements in AI research and technology, the future holds immense promise for creating a more equitable and accessible digital world where everyone can benefit from the transformative capabilities of artificial intelligence.