김남국 교수님 세미나 보고서

The lecture discussed the significant advancements in artificial intelligence (AI), specifically in the field of deep learning, which has surpassed human capabilities in various domains such as natural language processing, image recognition, and voice recognition. The focus of the lecture was on the application of AI in the medical industry and the challenges associated with its implementation.

The speaker mentioned that AI in medicine has progressed from a conceptual stage to practical application, with numerous studies demonstrating AI's ability to diagnose diseases at a level comparable to specialized medical practitioners. However, despite the promising results, there are significant hurdles to overcome before AI can be widely implemented in hospitals.

One of the challenges discussed was the imbalance and rare patterns found in medical data, which pose difficulties for AI systems. The issue of bias prompted by convenience sampling, novelty issues, and problems with continuous learning were also highlighted. The lecture emphasized the need for diverse strategies and techniques to address these challenges.

The use of AI in medical imaging was another important topic. The lecture mentioned that current AI applications could generate excessive false positives in low disease prevalence screening settings, leading to increased reading time for experienced radiologists. Potential solutions to this issue were proposed, including training on longitudinal and multi-modal datasets, associative learning with big data models, and the use of explainable AI and digital twins.

Additionally, the lecture touched upon the future applicability of Large Language Models (LLMs) in medicine. LLMs have the potential to interpret complex human written sentences and map them to a potential space, which could be beneficial for various medical applications. Integrating LLMs with big data could assist in identifying rare diseases, detecting atypical cases, and automating routine tasks for healthcare professionals.

In summary, the lecture discussed the advancements and challenges of AI application in the medical field, focusing on deep learning, medical imaging, and the potential of Large Language Models. The aim was to highlight the opportunities and obstacles in implementing AI in healthcare and finding solutions to overcome the challenges for widespread adoption.