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강연제목: Medical application of foundation models

Abstract:

The ability of large-scale language models to interpret human-written sentences at a high level of abstraction and map these interpretations into a latent space suggests potential medical applications. Large-scale language models hold the potential to revolutionize the medical and healthcare industries by improving the efficiency of medical diagnostics, treatments, and clinical/medical research. However, these models, being purely linguistic, often reinforce hallucinations, lack a conceptual understanding of reality due to their disconnect from physical experiences, and require continual learning-based fine-tuning to keep pace with medical advancements. Recently, to address these challenges, the development of Large-scale Multimodal Models (LMMs) that also learn from visual and video data has shown remarkable growth. Nevertheless, there is a perspective that auto-regressive methods, as currently used, inherently cannot avoid hallucinations. Therefore, research into 'langchains' and similar initiatives is actively underway, aiming to integrate intelligent agents with traditional systems using LLM capabilities such as summarization and extraction. Foundation models are garnering significant attention due to their demonstrated adaptability to new tasks through zero-shot learning or fine-tuning. This is particularly notable in the field of radiology, where it is estimated that there are approximately 30,000 tasks. Developing each of these tasks individually is cost-intensive and maintaining them is expected to be even more costly. Therefore, the creation of a foundation model for radiology, and its subsequent application across various tasks, is anticipated to facilitate the easier deployment of high-performing medical artificial intelligence in clinical settings.

Brief Biosketch

2023.12.01, 2023 년 보건의료 R&D 우수성과 30 선, 한국보건산업진흥원

2023.11.01, Pfizer Medical Research Award, Translational Research (화이자 의학상, 중개의학상)

2023.10.21, Korean Society of Artificial Intelligence in Medicine (KoSAIM) National Academy of Medicine of Korea Award (대한의료인공지능학회 2023 대한민국 의학한림원장상)

2022-2024, Chairman, Health and Medical Technology Policy Deliberation Committee, Digital Medical Field Expert Committee, Ministry of Health and Welfare (디지털의료분야 전문위원회 위원장, 보건의료기술정책심의위원회)

2021.11.23, Promotion of health and medical technology, Commendation from the Minister of Health and Welfare (보건의료기술진흥 유공자 (육성 · 진흥 부문) 보건복지부 장관상)

2021.05.28, Medical device safety management in Medical Device Day, Commendation of Ministry of Food and Drug Safety (의료기기의 날 의료기기 안전관리, 식약처장상)

2020.12, Professor of the Year Award in University of Ulsan College of Medicine (울산의대 올해의 교수상(연구부문))

2017-, Member, New Medical Technology Assessment Committee, National Evidence-based Healthcare Collaborating Agency, South Korea (분야별 전문평가위원회, 신의료기술평가위원회, 한국보건의료연구원, 보건복지부)

2016-2020, Member, Bio-healthcare Section, Regulatory Reform Committee, Office for Government Policy Coordination, Prime Minister's Secretariat (국무조정실 규제개혁위원회)

2017.04.28, President's Award of South Korea, Award for Merit for Regulatory Reform (규제개혁 유공 포상, 대통령 표창)

2017-, Member, Medical Device Committee, National of Food and Drug Safety (식품의약품안전처, 의료기기위원회)