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강연제목: Digital tomosynthesis imaging using deep learning methodology

Abstract: Digital tomosynthesis (DTS) is considered as an alternative to computed tomography (CT) due to low radiation dose and high scan efficiency. However, the strategy of the DTS imaging has the issues, such as geometric complexity, artifacts, high image noise. Although several methodologies have been reported for resolving the issues of the conventional DTS, the methods are limited to provide acceptable image quality and maximize its clinical availability. In this talk, I will introduce imaging techniques combined with the deep learning methodology for overcoming the issues of the conventional and currently reported DTS imaging techniques. First, I will show a dual-domain convolutional neural network (CNN) framework for suppressing artifacts and noise in 4D DTS imaging. Second, a modified-generative adversarial network (m-GAN) will be introduced as a solution for removing the truncation artifact, which arises in stationary-inverse geometry DTS (s-IGDTS) images. Finally, I will present the novel denoising model based on multi-agent reinforcement learning, which can improve the performance of the machine learning-based models.

Brief Biosketch

Dr. Seungwan Lee received his PhD in Radiological Science from Yonsei University in 2015. He is currently an associate professor of Radiological Science at Konyang University. His research interests are deep learning techniques for medical and non-destructive inspection imaging and spectral X-ray imaging for clinical applications.