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Dr Choi Yoon Seong is a radiologist and an Assistant Professor in the Department of Diagnostic Radiology at Yong Loo Lin School of Medicine, National University of Singapore. She graduated from Yonsei University College of Medicine, Korea, where she also completed her training and served as an Assistant Professor. Her early research focused on quantitative imaging biomarkers of brain tumors and has since expanded to neurodegenerative diseases. Specializing in translational research that bridges clinical radiology and data science, Dr Choi has published over 30 scientific papers, including influential works in Radiology and Neuro-Oncology. Her significant contributions include a 2018 radiomics paper on brain tumors and a 2021 study that combined deep learning and conventional radiomics to predict genetic mutations in brain tumors. Dr Choi is dedicated to optimizing imaging biomarkers' roles in clinical settings.

Topic: Artificial Intelligence in Brain Tumour Imaging

In this presentation, we will explore the application of radiomics and deep learning in brain tumor imaging, focusing on their limitations and strengths. Initially, AI aimed to address workforce shortages and extract deeper image information beyond human visual cognition. Radiomics translates voxel values and lesion shapes into specific disease characteristics but faces challenges in clinical implementation due to limited generalizability and reproducibility. Deep learning, which identifies relevant features directly from images, offers higher reproducibility and robustness, though it requires substantial data. We will review recent strategies to overcome these limitations and provide insights into the current state of AI in brain tumor imaging. Additionally, we will discuss emerging attempts to revisit conventional approaches for more sophisticated phenotyping of brain tumor imaging.