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**강연제목: 퇴행성 뇌질환 진단을 위한 PET 영상진단 기술 개발**

**Advancements in PET Imaging for Enhancing Neurodegenerative Brain Disease Diagnosis**

### **Abstract**

: With the aging of the global population, neurodegenerative diseases such as Alzheimer's and Parkinson's are becoming more common. In addition, PET is a useful clinical tool for accurately visualizing the presence of biomarkers in the brain associated with various neurodegenerative diseases. However, the relatively high level of radiation exposure and long scan times, along with the high cost of hybrid PET/CT and PET/MRI scans, are the main disadvantages of current PET examination. To address these shortcomings, we are developing a high-resolution, high-sensitivity PET scanner dedicated for the brain and other peripheral organs. The main goal of this work is to develop a scanner with a moving gantry for flexible patient and organ positioning with time-of-flight measurements and depth-of-interaction encoding capabilities. A reliable deep learning-based PET denoising and quantification solution is also being integrated. This talk introduces the progress of this endeavor.

### **Brief Biosketch**

Jae Sung Lee is a professor in Nuclear Medicine and Bioengineering at Seoul National University. He also established Brightonix Imaging Inc. in 2016, a pioneering venture dedicated to delivering cutting-edge PET imaging instruments and AI software solutions to the medical and molecular imaging community. Dr. Lee is esteemed as the Editor-in-Chief of Biomedical Engineering Letters and has significantly contributed to the IEEE NSS/MIC as Program Chair in both 2013 and 2021. His scholarly impact is evident through the publication of 14 book chapters and over 320 papers in peer-reviewed journals. Dr. Lee's contributions to the field have garnered recognition from various scientific societies, including the 2022 IEEE NPSS Medical Imaging Technical Achievement Award.

이재성 교수는 서울대학교 핵의학 및 바이오엔지니어링 교수로 재직 중이며, 2016년에 (주)브라이토닉스이미징을 설립하여 PET 영상기기 및 AI 소프트웨어 솔루션을 제공하고 있습니다. 그는 Biomedical Engineering Letters 편집장을 맡고 있으며, IEEE NSS/MIC 에서 2013 년과 2021 년에 두 차례나 학술위원장으로 활동한 바 있습니다. 14 개의 북 챕터와 320 편이 넘는 저널 논문을 발표했으며, 2022 년 IEEE NPSS 의료영상 기술 공로상을 비롯한 다수의 연구상을 받았습니다.