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**기타소속:**

**강연제목: 인간 장기 스케일 조직의 다중 스케일 이미징 및 표현형 분석을 위한 통합 기술  
플랫폼 Integrated platform for multi-scale imaging and phenotyping of human-organ  
scale tissues**

### **Abstract:**

Understanding the architectures and connections of cells is crucial for investigating how biological systems function and dysfunction. Yet, our current tools fall short in capturing the intricate details of individual cells within the broader human organ-scale system. To tackle this obstacle, we have created a comprehensive engineering platform that can simultaneously capture spatial, molecular, morphological, and connectivity information from individual cells within the intact slab-scale human brain tissues. This platform integrates innovative chemical (mELAST tissue-hydrogel processing), mechanical (MEGAtome slicing), and computational (UNSLICE pipeline) techniques. We showcased the groundbreaking potential of our platform by examining Alzheimer's disease pathology across multiple scales and demonstrating the ability to map neural connectivity in the human brain in a scalable manner.

### **Brief Biosketch**

Juhyuk Park earned his Ph.D. in Materials Science and Engineering from Seoul National University in 2018. Following this, from 2019 to 2024, he worked as a postdoctoral fellow at Massachusetts Institute of Technology (MIT). As of March 2024, Juhyuk has taken up the role of Assistant Professor at the Department of Materials Science and Engineering in Seoul National University. His scholarly pursuits center around the innovative processing of functional micro/nanoengineered polymeric materials, facilitating cross-disciplinary collaborations and exploration across various fields of study.