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강연제목: 멀티-모달 센서 네트워크를 이용한 지능형 메디컬 솔루션 Intelligent Medical Solution using Multimodal Electronics and Control Networks

Abstract:

With advancements in micro/nanofabrication technology, high-sensitivity wearable sensors have been developed, enabling the detection of a wide range of bio-signals. In parallel, progress in wireless communication technologies has facilitated real-time monitoring of these bio-signals, enhancing the quality of medical services. However, despite these advancements, high-sensitivity sensors are prone to detecting unwanted noise signals, creating challenges. Additionally, relying on data from a single sensor is often insufficient to improve diagnostic accuracy, and the complexity of analysis algorithms limits the expansion of real-time therapeutic applications. This paper introduces research on 1) reliable sensors resistant to external interference, 2) spatiotemporal bio-information using multimodal sensor networks, and 3) systems for real-time health monitoring and user feedback.

Brief Biosketch:

Dr. Jae-Young Yoo is an Assistant Professor in the Department of Semiconductor Convergence Engineering at Sungkyunkwan University, where he directs the Intelligent Semiconductor Electronics & System Laboratory. He received his B.S. (2015), M.S. (2016), and Ph.D. (2020) in Electrical Engineering from the Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea. He was a postdoctoral researcher at the Querrey Simpson Institute for Bioelectronics (QSIB) at Northwestern University. His research focuses on the fabrication of highly reliable medical sensors and wireless systems, and the real-time analysis of diverse vital signals. He has published 34 papers in peer-reviewed journals, including multidisciplinary journals such as Nature Medicine, Nature Electronics, Nature Communications, Science Advances, and PNAS, as well as fabrication journals specializing in nanostructured sensors such as Advanced Materials, Advanced Functional Materials, and ACS Nano.