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기타소속:

강연제목: 광 산란 극복: 생체 조직 고심도 광 이미징 기술
'Solving' optical complexity: seeing through biological tissues

Abstract:

This talk will explore ways to solve and use optical complexity. In the first part of the talk, I will introduce the approaches to solve the optical complexity in biological tissues and present the proof-of-concept of seeing through biological tissues. One approach is to retrace multiple light scattering in a 'time-reversed' fashion using optical phase conjugation and the other is to reject the multiply scattered light for a better visibility of ballistic light. I will also present our recent development in the development of spatiotemporal gating scheme to optimally reject the multiply scattered light. In the second portion, I will briefly present a novel way of using designed complex nanostructures to unlock an optical space that is inaccessible using conventional optics. Furthermore, I will briefly talk about our recent development in using a deep neural network for image reconstruction in a lensless imaging scheme.

Brief Biosketch

이력

- Assistant/Associate Professor, Bio and Brain Engineering, KAIST, Nov. 2019 -
- Research Fellow (alternative military service), Institute of Basic Science - Center for Molecular Spectroscopy and Dynamics, Korea University, 2016 -2019
- PhD, Electrical Engineering, Caltech, 2016
- BSc, Physics, KAIST, 2009

수상/연구/대외활동

- ASML Tech Talk Young Professor Paper Contest, 2023
- POSCO TJ Park Science Fellowship, 2019
- "Wavefront shaping with disorder-engineered metasurfaces", Nat. Photonics 12, 84 | 2018
- "Deep learning based on parameterized physical forward model for adaptive holographic imaging with unpaired data", Nature Machine Intelligence 5, 35 | 2023
- Nature Physics, Nature Physics Reviews, Science Advances, Nature Communications, Physical Review Letters 다수 출판
- Advanced Biophotonics Conference 행사위원장(2023), ICAMD 2021/2023 Bio 분과 공동분과위원장 등 학술 활동 다수 참여