2025 1학기 컴퓨터소프트웨어학부
CSE융합세미나

장소	ITBT관 911호
날짜 / 시간	2025.04.02 16:00~18:00

Upcoming Talk

백민경
교수 / 서울대학교

Protein structure prediction and design using AI

The fields of protein structure prediction and design have been transformed by AI approaches, achievements recognized by the 2024 Nobel Prize in Chemistry. This talk will overview these evolving fields, examining the groundbreaking AlphaFold system alongside our contribution, RoseTTAFold, and how they've fundamentally changed our ability to predict and design proteins with unprecedented accuracy.

I will discuss how these methods integrate sequence data, evolutionary patterns, and physical principles to solve the protein folding problem while enabling advances in de novo protein design. The presentation will cover how structure prediction models have been adapted for various design applications, including binder design, assembly design, and scaffolding functional motifs. I'll highlight our RFdiffusion model, a diffusion-based approach that has achieved exceptional performance across multiple design challenges. The talk concludes with perspectives on how these advances are reshaping structural biology and protein design, creating new opportunities in medicine, biotechnology, and our understanding of protein function.

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