

## 2021년 제 3회 통계세미나

고려대학교 통계연구소와 BK21 통계학교육연구팀이 다음과 같이  
공동으로 세미나를 개최하오니 많은 참여 바랍니다.

일시 : 2021년 4월 16일 (금) 오전 11시

장소 : 고려대학교 정경관 201호

연사 : 채민우 교수 (POSTECH 산업경영공학과)

### **A likelihood approach to deep generative models for nonparametric estimation of a single distribution**

#### <Abstract>

We investigate statistical properties of a likelihood approach to deep generative models for nonparametric estimation of a singular distribution. With our framework, a usual likelihood approach can fail to estimate the underlying distribution consistently because of the singularity. We prove that an effective estimation is possible by a simple data perturbation technique. We also characterize a certain class of distributions which can be efficiently estimated via deep generative models. The class is sufficiently general to contain various structured distributions such as product distributions, classically smooth distributions and distributions on a manifold. Our analysis gives some insights into how deep generative models can avoid the curse of dimensionality in a nonparametric distribution estimation problem. We also empirically demonstrate that the proposed data perturbation technique improves the estimation performance significantly.

고려대학교 통계연구소  
BK21 통계학교육연구팀