Talk 24: Julien Stoehr (Université Paris Dauphine-PSL)

Title: Importance sampling based inference for the PLN model

Abstract. The Poisson log-normal model is a latent variable model that provides a generic framework for the analysis of multivariate count data. Inferring its parameters can be a daunting task since the conditional distribution of the latent variables given the observed ones is intractable. For this model, variational approaches are the golden standard solution as they prove to be computationally efficient but lack theoretical guarantees on the estimates. Sampling based solutions are quite the opposite. In this talk, we will show how combining importance sampling with composite likelihood or PCA-based strategies can lead to practical methods that recover the desirable properties of M-estimators, thereby enabling practitioners to construct valid test procedures and confidence regions.