

Seminario Aleatorio

Sesión 411

Latent Space Modelling of Hypergraph Data

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Abstract

The increasing prevalence of relational data describing interactions among a target population has motivated a wide literature on statistical network analysis. In many applications, interactions may involve more than two members of the population and this data is more appropriately represented by a hypergraph. In this paper, we present a model for hypergraph data which extends the well established latent space approach for graphs and, by drawing a connection to constructs from computational topology, we develop a model whose likelihood is inexpensive to compute. A delayed-acceptance MCMC scheme is proposed to obtain posterior samples and we rely on Bookstein coordinates to remove the identifiability issues associated with the latent representation. We theoretically examine the degree distribution of hypergraphs generated under our framework and, through simulation, we investigate the flexibility of our model and consider estimation of predictive distributions. Finally, we explore the application of our model to two real-world datasets.

Working paper: <https://arxiv.org/pdf/1909.00472.pdf>

**Viernes 1° de septiembre de 2023,
13:00 horas de CDMX,
salón: 302, ITAM Campus Río Hondo**

Transmisión en línea:

<https://itam.zoom.us/j/94446870531?pwd=cnBuakIwWDFmR2lvZkxLSU5hcFQyUT09>

Meeting ID: 944 4687 0531

Passcode: 774808

El Seminario Aleatorio del Departamento de Estadística del ITAM está destinado tanto a profesores como a estudiantes, por lo que se agradece a los profesores que colaboren invitando a sus alumnos a estas sesiones.