



SEMINAR

Link Prediction Tools for Networked Economic and Financial Systems

Prof. Alessandro Spelta
University of Pavia

Chair: Prof. Giorgia Oggioni
University of Brescia

Wednesday, February 8th, 2023, 10:30 AM
Sala della Biblioteca, S. Faustino Building

In this paper we propose a flexible link forecast methodology for weighted temporal networks. Our probabilistic model estimates the evolving link dynamics among a set of nodes through Wasserstein barycentric coordinates. Optimal Transport theory is employed to interpolate among probability distributions representing network evolution sequences and to compute the probability distribution of forthcoming links. Besides generating point forecasts for weighted links, the methodology provides the probability that a link attains weights in a certain interval, namely a quantile of the weights distribution. We test this approach to forecast the link dynamics of the worldwide Foreign Direct Investments network and we find that the Wasserstein link forecast methodology outperforms some benchmark models in all the different experimental setups.