

Speaker: Marco Scutari (Dalle Molle Institute, Lugano)

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Title: Causal modelling for environmental epidemiology

Abstract:

The assumption that data are independent and identically distributed samples from a single underlying population is pervasive in statistical and machine learning modelling. However, most real-world data do not satisfy this assumption. Regression models have been extended to deal with structured data collected over time, space, and different populations. But what about causal network models, which often use regression for their local distributions? In this talk, I will discuss how to learn well-specified models with causal discovery in environmental sciences, epidemiology and other challenging domains that produce data with complex structures. I will focus on scalable and interpretable techniques, modelling the interplay between weather patterns, pollution, mental conditions and dermatological problems as an example.