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Department of
Mathematics

Inn'formal Probability Seminar

-Antonio Lorenzin (University College London)

"An Algebraic Approach to Moralisation and Triangulation of Probabilistic Graphical Models"

Abstract:

In the theory of probabilistic graphical models, a key distinction arises based on whether the underlying graph is directed or undirected. These two frameworks correspond to Bayesian networks and Markov networks, respectively. We'll first look at these models using a standard approach, and then reframe them in categorical terms using string diagrams. Two key transformations link the two types of networks: moralisation, which turns a Bayesian network into a Markov network, and triangulation, which goes in the other direction. These processes correspond to functors in a natural way, and this in turn suggests a nice categorical description of algorithms like the Junction Tree Algorithm.

Tuesday	13.05.2025	15:30
HS 10	Architekture building	