

Lightning-speed Model Selection of Complex Densities

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Graphical models are general purpose tools for representing complex multivariate distributions via a qualitative graph structure that encodes independencies, and local quantitative parameters. Copulas are a general purpose tool for representing complex (far from Gaussian, extreme value, etc.) real-valued distributions. In this talk I will describe a novel theoretical connection between Spearman's Rho and copulas and show how this can be used to learn the structure of expressive copula-based graphical models. In particular, we shall see that learning such complex distributions can be carried out (almost) as efficiently as learning a multivariate Gaussian. I will also demonstrate the effectiveness of the approach on several sizable real-life datasets.

No background knowledge in graphical models or copulas is needed.