



DEPARTMENT OF MATHEMATICS

City University of Hong Kong

Modeling Dependence: From Copulas to Neural Networks

by

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Time: 10:00 – 11:00 am

ABSTRACT

Copulas became popular in finance and insurance for modeling stochastic dependence. However, classical copula models often fail to provide adequate dependence models for real data. We suggest a new dependence modeling paradigm based on certain neural networks called generative moment matching networks. After a brief introduction to copula modeling, we explain why and how generative moment matching networks can replace classical copula models in a wide range of applications. We then present selected applications of this new dependence modeling approach in more detail, namely the construction of dependent quasi-random numbers (to estimate, for example, risk measures with variance reduction) and multivariate time series modeling with flexible dependence (to improve probabilistic predictions). Focus is then put on another application of generative moment matching networks in the copula modeling domain, namely model assessment and selection. The talk covers ideas from several papers of ours and aims at providing an overview over recent advances in learning dependence with neural networks.

Register in advance for this talk:

https://cityu.zoom.us/meeting/register/tJukfuqupjMjG91PGJNOON_Cp8DH5MzT9W3B

[Zoom link will be provided via email after registration.]



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