

Special Issue

The Mixture Transition Distribution Model and Other Models for High-Order Dependencies

Message from the Guest Editor

High-order Markov chains are very useful for the analysis of complex temporal relationships, but they generally require a very high number of parameters. A good approach is then to approximate them, and since its introduction in 1985 by Adrian Raftery, the mixture transition distribution (MTD) model attracted much attention, thanks to its parsimony and versatility. The MTD model has been developed and improved in various ways. Now, it can be used to represent and analyze categorical and continuous variables, covariates can be added as additional explanatory terms to the model, and it can also be combined with a hidden or a double-chain Markov model in order to consider the latent phenomena. The MTD model can be estimated through the standard EM algorithm, but ad hoc optimization algorithms were also developed for special situations. Finally, many applied papers have been published in fields as diverse as health, neural networks, finance, marketing, life course, and weather, among others...

Guest Editor

Prof. Dr. André Berchtold

Institute of Social Sciences & NCCR LIVES, University of Lausanne, Lausanne, Switzerland

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Symmetry
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Editor-in-Chief

Prof. Dr. Sergei Odintsov

1. ICREA, 08010 Barcelona, Spain

2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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