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Editorial

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This issue presents two papers about the application of well-known statistical model to various domains. The first one gives an overview on the applications of Bayesian Networks and existing software [1]. The second one presents the application of regression Models [2] to a socio-economic problem of a country and how the regression model can forecast the economic situation of a country.

Bayesian Networks (BN) can model the relationship between variables and their conditional probabilities [1] as directed acyclic graph. They combine graphical analysis with Bayesian analysis to represent relations linking measured and target variables. Such graphical maps can be used for diagnostics and predictive analytics as well as for explanation purposes to a domain expert. The application of Bayesian networks to various domains such as the evaluation of web site usability, the testing of web services, operational risks, biotechnology, customer satisfaction surveys, healthcare systems and an analysis of the impact of management style on statistical efficiency are presented. The pros and cons will be discussed, and the graphical representations of the calculated networks are shown for explanation purposes. The learning of a Bayesian network structure, the important properties as well as the association links and causality implications of Bayesian networks are discussed in a special section. An overview about available software programs will help the interested reader to figure out what software program suits his needs. It will help the user to quickly start his work with Bayesian networks. As a research outlook, the paper lists current research topics. We hope that it will influence the research on Bayesian networks of young and/or experienced scientists and direct them to new research topics.

In the second paper [2] soft computing method for evaluating economic performance of a country are presented even when there are severe limitations of data availability. A soft-regression model is developed for a socio-economic problem of a county under the circumstances that there are missing, unreliable, inaccurate data and outliers. Intervals are used to reduce the number of attribute-values in the dataset. Utilizing intervals allows to overcome difficult modeling problems such as large quantity of missing data, substantial outliers, etc. The developed model is applied to forecast the economic performance of a country based on available socio-economic data. With the look back now available, we can conclude that the model forecast solid and reliable conclusions. Such a model could help politician and civil engineers to judge the situation, to rethink their decision and to establish new tasks to develop the prosperity of a

society. The application shows that computerized diagnosis and decision models are also supportive politics and civil engineering not only in finance and stock markets. However, to generalize this conclusion new studies about the situation of other countries are necessary. It is also in question how the model will perform under unexpected situations such as pandemic diseases or other influences.

October, 2019 Petra Perner

References

1. Ron S. Kenett, Applications of Bayesian Networks, TRANSACTIONS ON MACHINE LEARNING AND DATA MINING, Volume 12 - Number 2 - October 2019, - Pages 33-52, P-ISSN: 1865-6781, E-ISSN 2509-9337.
2. Moti Schneider, Arthur Yosef, Eli Shnaider, Evaluating Economic Performance with Soft Regression, TRANSACTIONS ON MACHINE LEARNING AND DATA MINING, Volume 12 - Number 2 - October 2019 - Pages 53-72, P-ISSN: 1865-6781, E-ISSN 2509-9337.