Saïd Maanan

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Education

Ph.D. in Statistics **May 2015–Jun 2019**
University of Auckland *Auckland, New Zealand*
Advisor: Ciprian Doru Giurcăneanu.
Dissertation title: Inferring the Conditional Independence Graph for a Multivariate Autoregressive Model via Convex Optimization.

M.Sc. in Statistics **Sep 2013–Dec 2014**
Jiangsu University *Zhenjiang, Jiangsu, China*
Graduated with distinction.

B.Sc. in Economics **Sep 2008–Jun 2012**
Mohammed V University *Rabat, Morocco*
Graduated with distinction.

Employment

Post-Doctoral Researcher **Mar 2019–Feb 2021**
Aalto University, Probabilistic Machine Learning Group *Espoo, Finland*
I implemented an intelligent elevator control system based on machine learning algorithms in an effort to improve the sustainability and convenience of multi-floor buildings, by helping the elevator operate efficiently in the presence of uncertainty caused by random flow of people. The developed algorithm utilizes the information about passenger group sizes and their waiting time, provided by the image acquisition and processing system. The information is then used by the probabilistic decision-making model to conduct Bayesian inference and update the variable elimination technique to reduce the computational complexity associated with calculation of marginal and conditional probabilities, and Expectation-Maximization algorithm to ensure the completeness of the data sets. Python and Stan have been the only programming languages used throughout the whole project. Along the standard Python libraries for machine learning, I also used the ELFI software package in order to implement the Approximate Bayesian Computation method.

Graduate Research Assistant **Jul 2015–Jun 2016**
University of Auckland, Department of Statistics *Auckland, New Zealand*
I worked as a graduate research assistant for a collaboration project between the University of Auckland Department of Statistics and NIWA, the National Institute of Water and Atmospheric Research of New Zealand, with the objective of inferring the conditional independence graph of the relationship among air pollutants at the level of the city of Auckland. My role consisted in data cleaning and preprocessing, analyzing and interpreting the data to identify any pattern or relationship between the time series, exploratory analysis, and applying the algorithm I developed in order to identify the conditional independence graph of the multivariate time series data. I used R for data cleaning, preprocessing, visualization and exploratory analysis, while I used MATLAB in order to infer the conditional independence graph for the multivariate time series.

Research Interests

· Graphical Models for Time Series

· Latent-Variable Modelling

· Optimization Methods

· Multivariate Statistics

· Information Theory

Awards

University of Auckland Dept. of Statistics Doctoral Scholarship **2015–2018**
University of Auckland

Chinese Government Scholarship **2013–2014**
Jiangsu University

Teaching Experience

Computational Mathematics **Summer 2016, 2017, 2018**
MATHS 162
Computer lab coordinator for undergraduate Mathematics students; initiated students to the MATLAB programming language, and helped them write algorithms to implement numerical methods (linear algebra, partial differential equations), stochastic methods, numerical analysis.

Data Analysis **Spring 2015, 2016, 2017**
STATS 208
Computer lab coordinator for undergraduate Statistics students; familiarized students to the R programming language, and helped them implement various statistical techniques such as analysis of variance, regression analysis, generalized linear model, and data visualization.

Introduction to Statistics **Fall 2015, 2016, 2017**
STATS 101
Computer lab coordinator, initiated students from different majors to the use of statistical software such as SPSS, and to conduct basic statistical procedures such as estimation, statistical hypothesis testing, and exploratory data analysis.

Publications

[3] S. Maanan, B. Dumitrescu, and C.D. Giurcăneanu. "Maximum Entropy Expectation-Maximization Algorithm for Fitting Latent-Variable Graphical Models to Multivariate Time Series". In: *Entropy* 20.1 (2018). URL: `http://www.mdpi.com/1099-4300/20/1/76`.

[2] S. Maanan, B. Dumitrescu, and C.D. Giurcăneanu. "Conditional independence graphs for multivariate autoregressive models by convex optimization: Efficient Algorithms". In: *Signal Processing* 133 (Apr. 2017), pp. 122–134.

[1] S. Maanan, B. Dumitrescu, and C. D. Giurcăneanu. "Renormalized maximum likelihood for multivariate autoregressive models". In: *Proceedings of 2016 European Signal Processing Conference (EUSIPCO 2016)*. Budapest, Hungary, 2016, pp. 193–197.

References

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