Saïd Maanan

Higher Institute of Nursing Professions and Health Techniques
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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 in Rabat *Rabat, Morocco*
Graduated with distinction.

Employment

Lecturer **Sep 2023–Present**
Higher Institute of Nursing Professions and Health Techniques *Al Hoceïma, Morocco*
As a lecturer in statistics, I taught both biostatistics and introductory statistics to nursing students at the Guelmim and Al Hoceïma campuses. My courses cover applied methods relevant to clinical and public health research, with a focus on statistical reasoning, data interpretation, and evidence-based practice. I also supervise student research projects and contribute to academic and administrative responsibilities within the institute.

Adjunct Lecturer **Dec 2022–Aug 2023**
Mohamed V University, Department of Economics *Rabat, Morocco*
As an adjunct lecturer in Probability, I brought a deep understanding of probability theory to the undergraduate economics classroom. Through clear and insightful examples, I engaged students in a comprehensive exploration of probability concepts, fostering a dynamic learning environment. In addition to teaching, I conducted research in the areas of multivariate time series and environmental science. This involved extending existing methods and applications to new data. I actively collaborated with new researchers and expanded my network in the process.

Post-Doctoral Researcher **Mar 2019–Feb 2021**
Aalto University, Probabilistic Machine Learning Group *Espoo, Finland*
I implemented an intelligent elevator control system using machine learning algorithms to enhance the sustainability and convenience of multi-floor buildings. The algorithm, supported by an image acquisition and processing system, considers passenger group sizes and waiting times. It employs Bayesian inference based techniques for computational efficiency, and the Expectation-Maximization algorithm for data set completeness. The project was exclusively conducted in Python and Stan, incorporating the ELFI software package for Approximate Bayesian Computation.

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

· Spatial Statistics and Econometrics

· Time Series and Graphical Models

· Robust Statistical Methods

· Multivariate Analysis

· Applications

Awards & Scholarships

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

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

Teaching Experience

Introduction to Statistics **Spring 2024, 2025**
Module: Epidemiology *ISPITS Guelmim, ISPITS Al Hoceïma*
Taught the statistical component of the Epidemiology module to second-semester nursing students. The course covered foundational concepts in descriptive statistics and statistical indicators relevant to public health, including the calculation and interpretation of measures such as mean, median, etc. Emphasis was placed on data collection, graphical representation, and the statistical interpretation of health phenomena.

Biostatistics **Autumn 2023, 2024, 2025**
Module: Biostatistics *ISPITS Guelmim, ISPITS Al Hoceïma*
I taught a comprehensive biostatistics course to fifth semester nursing (anaesthesia) students, covering methods essential for their research, particularly for their final projects. Topics included sampling, estimation, hypothesis testing, univariate and bivariate analysis, among others. With an emphasis on practical applications, the aim was to equip students with the statistical skills for robust nursing research and confident application in their academic and professional endeavours.

Probability **Spring 2023**
Economics: Semester 2 *FSJES Souissi*

I worked as a teaching assistant for a course in probability, devised for undergraduate business and economics students. The objective of the course is to give students a basic understanding of probability, and to introduce them to notions such as combinatorics, random variables, probability distributions, etc. The course is rudimentary and does not require any prior knowledge apart from a few notions of algebra and calculus.

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

[4] Saïd Maanan. "Renormalized Maximum Likelihood for Spatial Lag Models". In: *Networks and Spatial Economics* (Nov. 2025). ISSN: 1572-9427. DOI: 10.1007/s11067-025-09715-w.

[3] Saïd Maanan, Bogdan Dumitrescu, and Ciprian Giurcăneanu. "Maximum Entropy Expectation-Maximization Algorithm for Fitting Latent-Variable Graphical Models to Multivariate Time Series". In: *Entropy* 20.1 (Jan. 2018), p. 76. ISSN: 1099-4300. DOI: 10.3390/e20010076.

[2] Saïd Maanan, Bogdan Dumitrescu, and Ciprian Doru Giurcăneanu. "Conditional independence graphs for multivariate autoregressive models by convex optimization: Efficient algorithms". In: *Signal Processing* 133 (Apr. 2017), pp. 122–134. ISSN: 0165-1684. DOI: 10.1016/j.sigpro.2016.10.023.

[1] Said Maanan, Bogdan Dumitrescu, and Ciprian Doru Giurcaneanu. "Renormalized maximum likelihood for multivariate autoregressive models". In: *2016 24th European Signal Processing Conference (EUSIPCO)*. IEEE, Aug. 2016, pp. 150–154. DOI: 10.1109/eusipco.2016.7760228.

Thesis Supervision

Zakaria Haci **Master's Thesis**

Mohammed V University of Rabat, Rabat, Morocco *2023–2024*

Thesis Title: *Optimisation des Modèles du Score de Crédit : Amélioration de la Précision, de l'Équité et de l'Efficacité* (Co-Supervised with Pr Ahmed El Ghini).

Communications

The 10th Days of Econometrics for Finance **Rabat, Morocco**
Renormalized Maximum Likelihood for Multivariate Autoregressive Models *April 26-28, 2023*

The 19th World Conference of the Spatial Econometrics Assoc. **Rabat, Morocco**
Renormalized Maximum Likelihood for Spatial Lag Models *May 05-06, 2025*

The 12th Days of Econometrics for Finance **Rabat, Morocco**
Multiscale Asymptotic Normality in Quantile Regression *May 07-08, 2025*

The 14th Workshop on High Dimensional Data Analysis **Mount Pleasant, Mich., USA**
Multiscale Asymptotic Normality in Quantile Regression *Aug 19-22, 2025*
Presented online

Organizing Committees

The 19th World Conference of the Spatial Econometrics Assoc. **Rabat, Morocco**
Member, Organizing Committee *May 05-06, 2025*

The 12th Days of Econometrics for Finance **Rabat, Morocco**
Member, Organizing Committee *May 07-08, 2025*

References

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