

# Saïd Maanan

Higher Institute of Nursing Professions and Health Techniques  
Guelmim 81000 – Morocco

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## Education

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### Ph.D. in Statistics

*University of Auckland*

**May 2015–Jun 2019**

*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

*Jiangsu University*

**Sep 2013–Dec 2014**

*Zhenjiang, Jiangsu, China*

Graduated with distinction.

### B.Sc. in Economics

*Mohammed V University in Rabat*

**Sep 2008–Jun 2012**

*Rabat, Morocco*

Graduated with distinction.

## Employment

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### Lecturer

*Higher Institute of Nursing Professions and Health Techniques*

**Sep 2023–Present**

*Guelmim, Morocco*

As a dedicated lecturer in Biostatistics, I play a vital role in shaping the educational experience of nursing students. My responsibilities include designing and delivering comprehensive lectures on various biostatistical methods, ensuring that the content remains relevant and in line with the latest developments in the field. In addition to teaching, I actively contribute to the academic community by mentoring and advising nursing students on their research projects, fostering a collaborative and innovative learning environment. This is in addition to my various administrative duties.

### Adjunct Lecturer

*Mohamed V University, Department of Economics*

**Dec 2022–Aug 2023**

*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

*Aalto University, Probabilistic Machine Learning Group*

**Mar 2019–Feb 2021**

*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

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- Graphical Models for Time Series
- Optimization Methods
- Multivariate Statistics
- Applications to Epidemiology and Medicine

## Awards & Scholarships

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**University of Auckland Dept. of Statistics Doctoral Scholarship**

**2015–2018**

*University of Auckland*

**Chinese Government Scholarship**

**2013–2014**

*Jiangsu University*

## Teaching Experience

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### Biostatistics

**Autumn 2023**

*Anaesthesia: Semester 5*

*ISPITS Guelmim*

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

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- [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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### Ahmed El Ghini

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