Adriano Polpo · Julio Stern
Francisco Louzada · Rafael Izbicki
Hellinton Takada   *Editors*

Bayesian Inference and Maximum Entropy Methods in Science and Engineering

MaxEnt 37, Jarinu, Brazil, July 09–14, 2017

Preface

MaxEnt 2017

This book brings the contributed works of MaxEnt 2017—37th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (http://www.gis.des.ufscar.br/meetings/2017maxent/).

The 37th MaxEnt happened in Jarinu-SP from 9 to 14 July 2017 and the event aimed at:

- strengthening research and presenting contributions in all aspects of Bayesian methods and maximum entropy, as well as extending its applications in problems from different scientific communities and in areas such as astronomy, reliability, cosmology, econometrics, engineering, quantum mechanics, stochastic processes, survival, etc.;
- providing an environment in which researchers could interact, presenting recent developments and discussing related issues;
- allowing graduate students to have contact with senior researchers to discuss their work and to start possible contacts for future doctorate studies and post-doctorate projects.

The main objective of this workshop was the discussion about Bayesian computational techniques such as Monte Carlo Markov Chain and approximate inferential methods, questions about foundation of probability, and information theory. It also considered the presentation and discussion of new applications of inference foundations of physical theories.

The event has had excellent talks given by researchers of international reputation, whose works are currently highlighted in applied mathematics and statistics.

The MaxEnt 2017 was organized by: Inductive Statistics Group (GIS), Department of Statistics of the Federal University of São Carlos (DEs/UFSCar), Institute of Mathematics and Statistics of the University of São Paulo (IME/USP), Mathematics and Computer Science, University of São Paulo (ICMC/USP), Postgraduate Program in Statistics of UFSCar/ICMC-USP, and CeMEAI.

The Conference Chairing Committee was

- Adriano Polpo (UFSCar, Brazil)
- Julio M. Stern (USP, Brazil)

The members of the Organizing Committee were

- Adriano Polpo (UFSCar, Brazil)
- Carlos Alberto de Bragança Pereira (IME-USP, Brazil)
- Francisco Louzada Neto (ICMC-USP, Brazil)
- Hellinton H. Takada (Itaú Asset Management, Brazil)
- Juliana Cobre (ICMC-USP, Brazil)
- Julio Stern (IME-USP, Brazil)
- Katiane Conceição (ICMC-USP, Brazil)
- Márcio Alves Diniz (UFSCar, Brazil)
- Nestor Caticha (IF-USP, Brazil)
- Rafael Bassi Stern (UFSCar, Brazil)
- Rafael Izbicki (UFSCar, Brazil)
- Teresa Cristina Martins Dias (UFSCar, Brazil)
- Victor Fossaluza (IME-USP, Brazil)

The members of the Scientific Committee were

- Adriano Polpo (UFSCar, Brazil)
- Ali Mohammad-Djafari (CNRS, France)
- Ariel Caticha (Univ. at Albany, USA)
- Carlos Alberto de Bragança Pereira (IME-USP, Brazil)
- Francisco Louzada Neto (ICMC-USP, Brazil)
- Hellinton H. Takada (Itaú Asset Management, Brazil)
- Julian Center (Autonomous Exploration Inc., USA)
- Julio Stern (IME-USP, Brazil)
- Kevin Knuth (Univ. at Albany, USA)
- Paul M. Goggans (Univ. of Mississippi, USA)
- Rafael Izbicki (UFSCar, Brazil)
- Robert Niven (UNSW, Australia)

The members of the Executive Committee were

- Luana A. Takahashi
- Rita Volckov
- Sylvia Regina A. Takahashi

The workshop included nine invited speakers, whose names and respective institutions are listed below

- Ariel Caticha (University at Albany, USA)
- Flávio B. Gonçalves (UFMG, Brazil)
- Udo von Toussaint (Max-Planck-Institut fuer Plasmaphysik, Germany)
- Karim Anaya-Izquierdo (University of Bath, United Kingdom)

- Estevam R. Hruschka Jr. (UFSCar, Brazil)
- John Skilling (Maximum Entropy Data Consultants, Ireland)
- Thais Fonseca (UFRJ, Brazil)
- Rubens Sampaio (PUC-RJ, Brazil)
- Kevin Knuth (University at Albany, USA)

Also, four tutorial sessions have been given and were presented by

- Adriano Polpo (UFSCar, Brazil)
- Ali Mohammad-Djafari (Centre National de la Recherche Scientifique, France)
- Hellinton H. Takada (Itaú Asset Management, Brazil)
- Rafael B. Stern (UFSCar, Brazil)

It is worth noting the significant participation of students (29), most of whom presented their works orally or in posters. This is an important indicator of a promising future for the areas covered by the event in the Brazilian scientific community. The workshop has been attended by 20 researchers from foreign institutions. The photo of the participants is shown in Fig. 1

We point out that all oral sessions were recorded. They are available to the entire community at https://goo.gl/p3KVu5.

The MaxEnt 2017 Organizing Committee is grateful for the support received from the following agencies and institutions: FAPESP, CNPq, CAPES, Interinstitutional Program of Postgraduate Studies in Statistics UFSCar/ICMC-USP, Program

Fig. 1 Group photo of MaxEnt 2017 participants

of Postgraduation in Applied Mathematics IME-USP, Postgraduate Program in Probability and Statistics IME-USP, Springer, Entropy Journal, and Boise State University.

São Carlos, Brazil   Adriano Polpo
July 2018   Julio Stern
                                                                                  Francisco Louzada
                                                                                      Rafael Izbicki
                                                                                  Hellinton Takada