Preface

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The Society for Artificial Intelligence and Statistics (SAIS) is dedicated to facilitating interaction between researchers in Artificial Intelligence and Statistics (AISTATS). The Society's main responsibility is to organize the International Conference on Artificial Intelligence and Statistics, AISTATS.

Starting in 2010 the Society agreed to run a European edition of the conference which is administered through the European Society for Artificial Intelligence and Statistics (ESAIS). We acted as programme chairs for the 17th AISTATS event and the third European edition, during April 22-25 2014 in Reykjavik, Iceland, which with its warm beaches welcomed the participants to the very high-quality programme. Following the example of the previous European edition of AISTATS, it was co-located with the 2014 Machine Learning Summer School (MLSS). Similar to AISTATS in 2012, also this year's event shared a tutorial day with MLSS (April 25th) and an evening poster session (April 24th) where MLSS students had the opportunity to present their work to AISTATS attendees. Tutorials were held by: Roderick Murray-Smith (University of Glasgow) on *Machine learning and Human Computer Interaction*, Christian P. Robert (Ceremade, Université Paris-Dauphine) on *Approximate Bayesian computation (ABC), methodology and applications*, and Håvard Rue (Norwegian University of Science and Technology) on *Bayesian computing with INLA*.

AISTATS2014 continued the success story of earlier European conferences, with 335 submissions that fall between the record-breaking 402 in 2012 and the 304 submissions in 2010. The number of accepted papers was 121, out of which 22 were presented orally and 99 as posters. The acceptance rate of papers was 36%, which is comparable to the previous conferences. The Senior Program Committee (area chairs) handling the submissions consisted of the following scientists:

- Edoardo Airoldi, Harvard University
- Florence d'Alche-Buc, Université d'Evry-Val d'Essonne
- Cédric Archambeau, Amazon
- Peter Auer, University of Leoben
- Erik Aurell, KTH
- Yoshua Bengio, Université de Montréal
- Carlo Berzuini, University of Manchester
- Jeff A. Bilmes, University of Washington
- Wray Buntine, NICTA
- Lawrence Carin, Duke University
- Guido Consonni, Università Cattolica del Sacro Cuore
- Koby Crammer, The Technion
- Emily B. Fox, University of Washington
- Mehmet Gönen, Sage Bionetworks
- Aapo Hyvärinen, University of Helsinki
- Timo Koski, KTH
- John Paisley, Columbia University
- Jan Peters, Technische Universität Darmstadt
- Volker Roth, Universität Basel
- Yevgeny Seldin, Queensland University of Technology and UC Berkeley
- Scott Sisson, University of New South Wales
- Suvrit Sra, Max-Planck Institute for Intelligent Systems
- Masashi Sugiyama, Tokyo Institute of Technology
- Joe Suzuki, Osaka University
- Bill Triggs, Centre National de Recherche Scientifique
- Aki Vehtari, Aalto University
- Jean-Philippe Vert, Mines ParisTech and Curie Institute
- Stephen Walker, University of Texas at Austin
- Kun Zhang, Max Planck Institute for Intelligent Systems

The submissions were reviewed by a Programme Committee of 247 reviewers and each paper was assigned to at least 3 reviewers, such that only a couple of reviewers handled more than 5 papers. The initial review process was followed by a discussion among the reviewers moderated by the area chairs. The authors were given the chance to respond to the reviews

and their responses were made available to the reviewers for comment before decisions were made. We are grateful to Microsoft Research who provided the CMT online conference management system for handling the large volume of papers and reviews, and the Toronto team for the Toronto Paper Matching System. We are extremely grateful to all the area chairs and reviewers who provided high-quality feedback under a very demanding schedule.

As in the previous two European AISTATS conferences, the programme in 2014 included "breaking-news posters", which were not included in the proceedings. These were more lightly reviewed and provided a possibility for attendees to present recent results either already published elsewhere or ongoing work. As a new presentation category, we introduced "highlight talks", which provided an opportunity to present recently published flagship research that would be attractive for a wide audience among AISTATS attendees. A large number of proposals was received and each of these was reviewed on average by 3 SPC members. In total four proposals were accepted to be orally presented: *Gaussian Processes for Data-Efficient Learning in Robotics and Control* by Marc Deisenroth, Dieter Fox and Carl Rasmussen, *Bayesian Monitoring for the Comprehensive Nuclear-Test-Ban Treaty* by Stuart Russell, Erik Sudderth and Nimar Arora, *Representation Learning: A Review and New Perspectives* by Yoshua Bengio, and *Spatiotemporal point process models of conflicts* by Andrew Zammit-Mangion, Michael Dewar, Visakan Kadirkamanathan and Guido Sanguinetti.

Each conference day began with an invited keynote talk. The keynotes were delivered by: Peter Bühlmann (ETH Zürich) *High-dimensional Causal Inference*, Andrew Gelman (Columbia University), *Weakly Informative Priors: When a little information can do a lot of regularizing*, Michael I. Jordan (University of California, Berkeley) *On the Computational and Statistical Interface and "Big Data"*. The talks were all fascinating and provided an inspiring insight into topics that are both challenging and timely in machine learning. Three papers in the proceedings were awarded as particularly notable work: *Decontamination of Mutually Contaminated Models*, by Gilles Blanchard and Clayton Scott, *Distributed Optimization of Deeply Nested Systems*, by Miguel Carreira-Perpinan and Weiran Wang, and *Analysis of Empirical MAP and Empirical Partially Bayes: Can They be Alternatives to Variational Bayes?*, by Shinichi Nakajima and Masashi Sugiyama.

Successful organization of an international conference requires collaboration of a large number of individuals, starting from the SPC members and the reviewers who put in a massive effort to ensure that both scientific quality and a high level of inspiration were disseminated throughout the event. We are extremely grateful to everyone helping the 17th AISTATS to become a reality, but would like to in particular mention the following individuals: As a Publication Chair, Antti Honkela was irreplaceable in ensuring that the different parts of the review and publication process worked out as smoothly as possible. He did more than his share. Jaakko Peltonen did a tremendous job as a Publicity Chair, and Dorota Glowacka got a great set of sponsors on board. The work of the local chair Deon Garrett started already two years before the conference, and produced a refreshing northern experience. Lastly, we want to thank the sponsors Amazon, Digile, Facebook, Google and Springer.

Reviewers

We are grateful to everyone who agreed to review for the seventeenth edition of the International Conference on Artificial Intelligence and Statistics. They are listed below.

Yasin Abbasi-Yadkori
David Adametz
Ryan Adams
Tero Aittokallio
Genevera Allen
Mauricio Alvarez
Massih-Reza Amini
Galen Andrew
Christophe Andrieu
Ery Arias-Castro
Elja Arjas
Paul Baines
David Balduzzi
Arindam Banerjee
Elias Bareinboim
Gabor Bartok
Stephen Becker
James Bergstra
Michel Besserve
Gilles Blanchard
Matthew Blaschko
Natalia Bochkina
Edwin Bonilla
Luke Bornn
Alexandre Bouchard
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Y-Lan Boureau
Sebastien Bubeck
Alberto Giovanni Busetto
Roberto Calandra
Ben Calderhead
Olivier Cappe
David Carlson
Miguel Carreira-Perpinan
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