

Preface

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 fifteenth AISTATS event and second European edition, which took place during April 21-23 2012 at Los Cancajos, La Palma in the Canary Islands. It was preceded by the 2012 Machine Learning Summer School (MLSS). An innovation for this year's event was the shared tutorial day with MLSS on the 20th April followed by an evening poster session where MLSS students had the opportunity to present their work to AISTATS attendees. Zoubin Ghahramani (University of Cambridge) presented on *Nonparametric Bayesian Modelling* and David Hogg (NYU) presented on *Probabilistic Decision-Making, Data Analysis, and Discovery in Astronomy*.

The ongoing success of both the conference and its European venture was confirmed by the statistical evidence. There were 402 submissions representing a 50% increase over 2011 and a 30% increase over the previous European edition. The number of participants at the main conference was 203 and the overall acceptance rate of approximately 40% was maintained at about the same level as 2012 resulting in 157 accepted papers of which 24 were presented orally and 133 as posters. The submissions were handled by a Senior Programme Committee ("area chairs") consisting of the following individuals.

Ryan P. Adams	Harvard University
Edo Airoldi	Harvard University
Peter Auer	University of Leoben
Yoshua Bengio	Universit de Montral
Matthew Blaschko	University of Oxford
David Blei	Princeton University
Guillaume Bouchard	Xerox Research Centre Europe
Nicolas Chopin	CREST
Koby Crammer	Technion University
Arnaud Doucet	University of Oxford
Nial Friel	University College, Dublin
Matthias Hein	Saarland University
Katherine Heller	Duke University
Dirk Husmeier	Biomathematics and Statistics Scotland
Sayan Mukherjee	Duke University
Brendan Murphy	University College, Dublin
Guillaume Obozinski	INRIA LIENS, Paris
Jan Peters	Technische Universitt Darmstadt
Massimiliano Pontil	University College, London
Christian Robert	Universit de Paris, Dauphine
Dan Roy	University of Cambridge
Ricardo Silva	University College, London
Oliver Stegle	Max Planck Institute, Tübingen
Charles Sutton	University of Edinburgh
Bill Triggs	CNRS
Aki Vehtari	Aalto University
Jean-Phillipe Vert	Mines ParisTech
Hao Helen Zhang	North Carolina State University

Area chairs handled on average 20 submissions and papers were reviewed by a Programme Committee of 298 reviewers. Each paper was reviewed by at least three reviewers and no reviewer handled more than

four papers. The initial review process was followed by a discussion phase 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 were grateful to Microsoft who provided the CMT online conference management system for handling the large volume of papers and reviews. We were extremely grateful to all the area chairs and reviewers who provided high-quality feedback on a demanding schedule.

For the conference programme we followed the 2010 edition of the conference in inviting “breaking news abstracts” to be presented at the conference. These were light-touch reviewed and are not included in these proceedings, but provided attendees a chance to present work in progress, or work published at other venues that was thought to be of particular interest to the AISTATS audience.

Each day began with an invited talk: Gábor Lugosi *Detection of Correlations in High Dimension*, Sir Gordon Duff *Patterns, Predictions and Personalised Medicine* and Rien van de Weijgaert *Topology of the Cosmic Web*. The diversity of the talks reflects the wide range of interests of the AISTATS community and all speakers were both stimulating and engaging generating a wider range of questions from the audience.

The best paper award was sponsored by Springer and awarded to “Minimax Rates of Estimation for Sparse PCA in High Dimensions” by Vincent Vu and Jing Lei.

One of the most gratifying aspects of being involved in conference organization is the manner in which colleagues work together to ensure the success of the event. As well as the Senior Programme Committee and the body of reviewers there are many hidden hands that ensure the pieces are well placed for smooth progression of events. We are extremely grateful to everyone who helped but we would like to make particular mention of the individuals below.

Suvrit Sra acted as Sponsorship Chair and generated financial support from PASCAL2 and Google which covered invited speaker costs. Kun Zhang worked diligently as Publicity Chair ensuring the website was up to date and distributing publicity material. Particular thanks go to Nicolás Fusi who, as Publications Chair, pulled together the conference proceedings, ensuring everything was available in a timely manner. Sabrina Rehbaum provided general support to the organizing committee including logistical arrangements for equipment and speakers. With assistance from Katrin Grieger and Judith Schöpfer she handled registration fees and she also led the onsite team, registering participants and dealing with organizational issues. In these latter efforts she was ably assisted by Philipp Hennig and Niamh O’Mahoney as well as Isabel Valera and Francisco J. Rodriguez Ruiz. Additional on site technical support was provided by Edgar Klenske and Timm Meyer.

Initial organization of the event began two years prior with a core team involving the Local Chair, Fernando Perez Cruz, who dealt with the negotiations with the venue and was overall responsible for the smooth progress of operations in Los Cancajos. In these efforts he was assisted by Emilio Hernandez.

Finally we would like to thank the General Chair, Bernhard Schölkopf, who coordinated the entire operation and provided support and organizational oversight for the venture.

Neil Lawrence and Mark Girolami
University of Sheffield and University College, London

Reviewers

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

Andrej Aderhold	Jeongyoun Ahn	Christoforos Anagnostopoulos
Christophe Andrieu	Cedric Archambeau	Sylvain Arlot
Shazad Asif	Francis Bach	Paul D. Baines
Arindam Banerjee	David Barber	Simon Barthelmé
Ronald Begg	Samy Bengio	Kristin Bennett
James Bergstra	Alex Beskos	Gérard Biau
Jon Bischof	Gilles Blanchard	Alex Blocker
Charles Blundell	Natalia Bochkina	Antoine Bordes
Karsten Borgwardt	Luke Bornn	Leon Bottou
Alexandre Bouchard	Anne-Laure Boulesteix	Y-Lan Boureau
Charles Bouveyron	Jordan Boyd-Graber	Ben Calderhead
Olivier Cappé	Lawrence Carin	Francois Caron
Miguel Carreira-Perpinan	Carlos Carvalho	Nicolò Cesa-Bianchi
Jonathan Chang	Olivier Chapelle	Gal Chechik
Hyonho Chun	William S. Cleveland	Chris Clifton
Ronan Collobert	Jukka Corander	Julien Cornebise
Timothée Cour	Aaron Courville	Gabor Csardi
Botund Cseke	Aron Culotta	John Cunningham
Marco Cuturi	Alexandre d'Aspremont	Arnak Dalalyan
Sanjoy Dasgupta	Hal Daume III	Phil Dawid
Nando de Freitas	Nema Dean	Ofer Dekel
Guillaume Desjardins	Tom Diethe	Adrian Dobra
Frank Dondelinger	Finale Doshi	Mark Drezde
Chris Drovandi	Greg Druck	John Duchi
David Dunson	Jennifer Dy	Marc Dymetman
Jacob Eisenstein	Lloyd Elliott	Barbara Engelhardt
Dumitru Erhan	Jason Ernst	Richard Everitt
Ludger Evers	Paul Fearnhead	Rob Fergus
Jose Figueroa-Lopez	Maurizio Filiponne	Mike Finegold
Emily Fox	Nicolò Fusi	Thomas Gaertner
Jan Gasthaus	Peter Gehler	Ed George
Sean Gerrish	Zoubin Ghahramani	Inmar Givoni
Claire Gormley	Dilan Görür	Robert B. Gramacy
Alex Graves	Derek Greene	Arthur L. Gretton
Jim Griffin	Roger Grosse	Amit Gruber
Marco Grzegorzcyk	Carlos Guestrin	Michele Guindani
Shengbo Guo	Michael Gutmann	Bertrand Haas
Richard Hahn	Lauren Hannah	Zaid Harchaoui
Jouni Hartikainen	Nicolas Heess	Philipp Hennig
Christian Hennig	James Hensman	Ralf Herbrich
Tom Heskes	Simon Hill	Geoffrey Hinton
David Hitchcock	Chris Holmes	Antti Honkela
Brett Houlding	Patrik Hoyer	Jonathan Huang
David Hunter	Ferenc Huszar	Alex Ihler

Pierre Jacob	Laurent Jacob	Ajay Jasra
Rodolphe Jenatton	Shane Jensen	Adam Johansen
Matthew J. Johnson	Galin Jones	Pasi Jylänki
Kostas Kalogeropoulos	Dimitris Karlis	Samuel Kaski
Koray Kavukcuoglu	Yoshinobu Kawahara	Sathya Keerthi
Sergey Kirshner	Arto Klami	David Knowles
Iasonas Kokkinos	Vladimir Kolmogorov	Risi Kondor
Aryeh Kontorovich	Brian Kulis	James Kwok
Theo Kypraios	Simon Lacoste-Julien	Brenden Lake
Christoph H. Lampert	Hugo Larochelle	Francois Laviolette
Nevena Lazic	Nicolas Le Roux	Erik G. Learned-Miller
Guy Lebanon	Sophie Lebre	Ann B. Lee
Jaeyong Lee	Honglak Lee	Daniel Lee
Anthony Lee	Victor Lempitsky	Jure Leskovec
Christina Leslie	Christoph Lippert	Jenn Listgarten
Qiang Liu	Yufeng Liu	Phil Long
Daniel Lowd	Simon Lunagomez	Ulrike von Luxburg
Julien Mairal	Gideon Mann	Shie Mannor
Jean-Michel Marin	Florian Markowetz	Pekka Marttinen
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Andriy Mnih	Shakir Mohamed	Andrea Montanari
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Kevin P. Murphy	Iain Murray	Jennifer Neville
Sebastian Nowozin	Rebecca Nugent	Guillaume Obozinski
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Francesco Orabona	Peter Orbanz	Omiros Papaspiliopoulos
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Massimiliano Pontil	Yuan Qi	Xinye Qiao
Tapani Raiko	Liva Ralaivola	Marc'Aurelio Ranzato
Vinayak Rao	Gunnar Rätsch	Magnus Rattray
Pradeep Ravikumar	Iead Rezek	Thomas Richardson
Jaakko Riihimäki	Alessandro Rinaldo	Stephen Roberts
Stéphane Robin	Simon Rogers	Lorenzo Rosasco
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Noah Smith	Padhraic Smyth	Luigi Spezia
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Richard Turner	Jurgen Van Gael	Jarno Vanhatalo
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Kai Yu	Kun Zhang	Hua Zhou
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James Zou		