IMS Bulletin

August 2016

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Your new Council members

We are pleased to confirm the results of the 2016 IMS Council elections. The President-Elect is Alison Etheridge. The five new Council members are Jean Bertoin, Songxi Chen, Elizaveta Levina, Simon Tavaré and Cun-Hui Zhang.

The new Council members and President-Elect will serve IMS for three years, starting officially at the IMS Business Meeting, held this year at the World Congress in Toronto. They will join the following Council members: Peter Bühlmann, Florentina Bunea, Geoffrey Grimmett, Aad van der Vaart and Naisyin Wang (who are on Council for a further year), and Andreas Buja, Gerda Claeskens, Nancy Heckman, Kavita Ramanan and Ming Yuan (whose terms last until August 2018). The new Council members will replace Rick Durrett, Steffen Lauritzen, Susan Murphy, Jonathan Taylor and Jane-Ling Wang.

IMS Council also recently appointed a **new Treasurer**, Zhengjun Zhang. Zhengjun is a professor in the Department of Statistics at the University of Wisconsin–Madison. Therefore, starting at the Business Meeting, the new IMS Executive Committee will be Jon Wellner (President), Richard Davis (Past President), Alison Etheridge (President-Elect), Zhengjun Zhang (Treasurer), Judith Rousseau (Program Secretary), and Aurore Delaigle (Executive Secretary). Former President Erwin Bolthausen and Treasurer Jean Opsomer will leave the Executive Committee this year.

We express our gratitude to all those who give their time and energy to assist the IMS. Thanks too, to those who also stood for election this year. And finally, thanks to all the IMS members who took the time to vote!

Alison Etheridge
President-Elect

Jean Bertoin
Council 2016–19

Songxi Chen
Council 2016–19

Elizaveta Levina
Council 2016–19

Simon Tavaré
Council 2016–19

Cun-Hui Zhang
Council 2016–19

IMS Members' News

International Astrostatistics Association

IMS Fellow G. Jogesh Babu of Pennsylvania State University, and member Joseph M. Hilbe of Arizona State University, have been awarded the International Astrostatistics Association (IAA) Outstanding Contributions to Astrostatistics medal, the top award given to members of the global astrostatistics and astroinformatics community by the IAA. Both were also elected IAA fellows, as was another IMS fellow, David van Dyk of Imperial College, London.

The International Astrostatistics Association was founded as an independent scientific association for astrostatistics and astroinformatics in 2012, developing from the International Statistical Institute astrostatistics committee and network. The goal of the association from its outset has been to foster collaboration between statisticians and astronomers. It also has a goal of encouraging the production of educational books, articles, white papers, and tutorials in statistics for the benefit of the astronomical community. See http://iaa.mi.oa-brera.inaf.it/

Spiegelman receives Don Owen Award

The 2016 Don Owen Award, given by the ASA's San Antonio Chapter, was presented to Clifford Spiegelman at the 36th annual Conference of Texas Statisticians. Cliff is a professor at Texas A&M University. He earned his doctoral degree in statistics from Northwestern University in 1976; taught at Florida State, Northwestern, and Johns Hopkins; and served as a scientist at the National Bureau of Standards for nine years before joining Texas A&M in 1987.

Doerge receives ACE Fellowship

Rebecca W. Doerge, the Trent and Judith Anderson Distinguished Professor of Statistics and President's Fellow for Big Data and Simulation at Purdue, has been awarded Fellow of American Council of Education (ACE) for 2016–17. Each university nominates only one candidate who shows promise of being an academic leader for ACE fellowship. Read the list of fellows at http://www.acenet.edu/news-room/Pages/ACE-Fellows-Class-of-2016-17.aspx.

Dipak Dey appointed Editor-in-Chief of *Sankhya*

Professor Dipak K. Dey, Board of Trustees Distinguished Professor and Associate Dean of the College of Liberal Arts and Sciences at the University of Connecticut, has been appointed Editor-in-Chief of the prestigious scientific journal *Sankhya*, the Indian journal of statistics. Dipak is a former editor of the *IMS Bulletin*, and is a Fellow of IMS, ISBA and ASA, and an elected member of the ISI. He is a past-president of the International Indian Statistical Association and in 2014 received the Outstanding Statistician Award from the Connecticut chapter of the ASA.

Sankhya is published by The Indian Statistical Institute. The journal was founded by Prasanta Chandra Mahalanobis in 1933 and is now published in two series, A and B, in collaboration with Springer. All submissions to *Sankhya* are now online, using:

For Series A: http://www.springer.com/statistics/journal/13171

For Series B: http://www.springer.com/statistics/journal/13571

Sankhya publishes research articles in the broad areas of theoretical statistics, probability and applied statistics. Series A primarily covers theoretical statistics and probability (including stochastic processes). Series B primarily covers all areas of applied statistics (including applied probability, applied stochastic processes, econometrics and statistical computing). Reviews and discussion articles in areas of current research activity are also published. Each volume has four parts: Series A issues are in February and August, Series B in May and November.

IMS Members' News

Army Wilks Award to Alyson Wilson

This year's Army Wilks Award winner is Alyson Wilson, professor of statistics at North Carolina State University. The award—established to commemorate the career of Samuel S. Wilks and his service to the Army—is given to a deserving individual who has made a substantial contribution to statistical methodology and application affecting the practice or application of statistics to problems in defense and security. The Army Wilks Award is given periodically at the Conference on Applied Statistics in Defense (CASD), which was held October 19–22, 2015, at George Mason University in Fairfax, Virginia.

Bin Yu to give keynote at Women in Statistics and Data Science conference
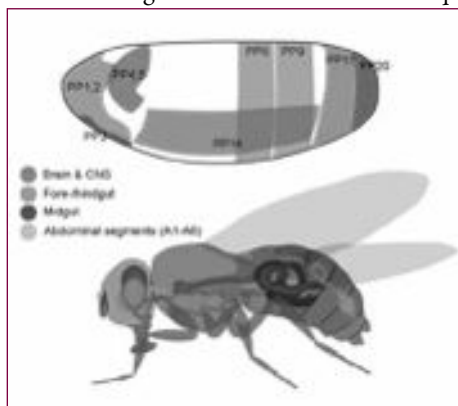
The Conference for Women in Statistics and Data Science (WSDS), organised by the ASA, is to be held October 20–22 in Charlotte, North Carolina. WSDS 2016 will bring hundreds of statistical practitioners and data scientists together in celebration of women in statistics and data science. The focus is to empower women statisticians, biostatisticians, and data scientists by exchanging ideas and presenting technical talks on important, modern, and cutting-edge research; discussing how to establish fruitful multidisciplinary collaborations; and showcasing the accomplishments of successful women professionals.

Registration is open now, and the housing deadline is September 20. Conference registration ends October 4. Travel awards are available: apply by August 8. Find out more about the conference at https://ww2.amstat.org/meetings/wsds/2016/index.cfm

One of the featured speakers at WSDS is Bin Yu (along with Cynthia Clark, Stacy Lindborg and Wendy Martinez). Bin was interviewed about her career in interdisciplinary statistics for *Amstat News*: you can read the article at http://magazine.amstat.org/blog/2016/06/01/wsds16/

In the interview, Bin talks about four of her current projects. One of these, a long-term collaboration with biologists Erwin Frise and Sue Celniker of Lawrence Berkeley National Lab (LBNL) that uses novel spatial gene expression data to understand how organs are formed in the fruit-fly, was profiled in the Berkeley Lab news center (*Mapping a Cell's Destiny: New Berkeley Lab Tool Speeds Discovery of Spatial Patterns in Gene Networks*, http://newscenter.lbl.gov/2016/05/04/mapping-cells-destiny/). Bin has been working on this with her students Siqi Wu and Karl Kumbier and former postdocs Antony Joseph and Siva Balakrishnan; they also work with Wei Xu's computer science team at Tshinghua University to scale up the computations by building upon open-source platforms Spark and Fiji.

She says, "This is my favorite data science project since it represents an iterative knowledge discovery process that is complete with wet-lab knockout experiments, statistical and machine learning methodology development, and software development for other groups to go after heterogeneous building blocks hidden in their data, spatial or not. This project also motivated exciting theoretical work on dictionary learning. The theoretical study has made us go back to practice for the next step of devising uncertainty measures. It would not have been possible without my amazing student, Siqi Wu."

Credit Siqi Wu, UC Berkeley and Berkeley Lab

IMS Fellows 2016

Congratulations to the 16 new IMS Fellows elected this year! They will be presented at the IMS Presidential Address and Awards session at the World Congress, on Monday, July 11 at 6:30pm.

Marek Biskup, for excellent research in the interface of probability theory and statistical physics.

Nina Gantert, for her influential contributions in the study of motion in random media.

Emery Neal Brown, for exceptional contributions to mathematical and statistical modeling and analysis of neuroscience data; and for outstanding leadership and service to the profession.

Elizaveta Levina, for fundamental contributions to high-dimensional statistics, particularly to network modeling.

Herold Dehling, for fundamental contributions at the interface of probability and statistics, particularly to asymptotics for dependent data structures and empirical processes.

Eyal Lubetzky, for fundamental contributions to the cut-off phenomenon and the dynamics of the Ising model.

Mathias Drton, for outstanding contributions to mathematical statistics, particularly to graphical modeling and algebraic statistics with algorithmic applications.

Nicolai Meinshausen, for exceptional contributions to high-dimensional and computational statistics, causal inference and widely recognized research in climate sciences.

Lutz Duembgen, for outstanding contributions to mathematical statistics, particularly to nonparametrics, shape-constrained inference and empirical processes; and for his exceptional leadership and service to the profession.

Eric Moulines, for his excellent contributions in asymptotic theory for time-dependent models, particularly to hidden Markov models and stochastic algorithms.

Alison Etheridge, for outstanding research on measure-valued stochastic processes and applications to population biology; and for international leadership and impressive service to the profession.

Carl Eric Mueller, for fundamental and influential contributions in stochastic partial differential equations and measure-valued diffusions; and for his important services to the community.

Peiyong Annie Qu, for her influential contributions to estimating equations, semiparametric inference on correlated data; and for her outstanding service to the profession.

Harry van Zanten, for excellent and sustained contributions to the frequentist asymptotic properties of Bayesian procedures.

Marc A. Suchard, for outstanding contributions at the interface between applied mathematics, statistics and epidemiology, particularly to computational methodology for stochastic processes, Bayesian statistics, and population genetics.

Hao Helen Zhang, for her influential contributions to nonparametric statistics, feature selection, high-dimensional statistics, and machine learning and data mining; and for her excellent service to the profession.

Call For Nominations:
C.R. and Bhargavi Rao Prize
for Outstanding Research in Statistics

The C.R. and Bhargavi Rao Prize was established to honor and recognize outstanding and influential innovations in the theory and practice of mathematical statistics, international leadership in directing statistical research, and pioneering contributions by a recognized leader in the field of statistics. The Rao Prize is awarded by the Department of Statistics at Penn State University to a nominee selected by the members of the Rao Prize Committee. C.R. Rao, Emeritus Professor of Statistics at Penn State, held the Eberly Chair in Statistics at Penn State from 1988 to 2001.

Previous Rao Prize recipients are: Bradley Efron, Jayaram Sethuraman, Lawrence D. Brown, Peter J. Bickel, James O. Berger, Herman Chernoff and Sir David Cox. For additional information, see http://stat.psu.edu/rao-prize.

Nominations for the 2017 Rao Prize should be submitted by December 31, 2016 by email to depthead@stat.psu.edu or by regular mail to: *Chair, Rao Prize Selection Committee, 326 Thomas Building, Penn State University, University Park, PA 16802-2111.*
The Rao Prize shall be awarded in odd numbered years. The award recipient will receive a medal, a cash prize, and an invitation to visit Penn State and give a talk as part of a day-long workshop.

Nominations should include a letter describing the nominee's outstanding contributions to leadership and research in statistics, a current curriculum vita, and two supporting letters.
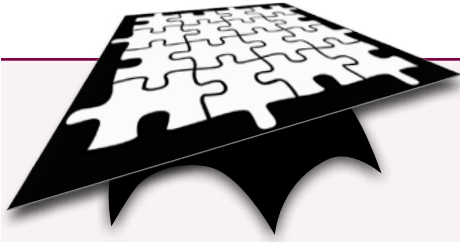

If you're attending JSM in Chicago, come and meet other early-career researchers at

New Researchers Group Mixer

*on **Monday, August 1, 2016***
*from **6:30–8:00 pm***
*in the **Joliet** Room in the Hilton*

Student Puzzle Corner 15

It is the turn of a problem on probability this time. We will consider a problem that looks like a problem on analysis. Many of you know that analysis and probability share a strong synergistic relationship; there are a number of classic texts on how analysis and probability feed into each other. The problem will be left slightly open ended to whet your imagination. Here is the exact problem of this issue:

(a) Let f be a given function on the unit interval [0, 1]. Define now a sequence of functions f_n by the rule $f_n(x)$ = The average value of f over the interval $[\frac{k}{2^n}, \frac{k+1}{2^n}]$, if $x \in [\frac{k}{2^n}, \frac{k+1}{2^n}]$.
What is the weakest sufficient condition you can provide under which $f_n(x) \to f(x)$ for almost all x? Give a proof of your claim.

(b) For extra credit only: Fix an $\epsilon > 0$. Is it true that for some set B with $\int_B dx < \epsilon$, $\sup_{x \notin B} |f_n(x) - f(x)| \to 0$? That is, is it true that in fact outside of a set of arbitrarily small measure, f_n will converge uniformly to f?

Deadline August 7

Solution to Puzzle 14

Editor Anirban DasGupta writes:

We had Tom Berrett at Oxford University, Promit Ghosal at Columbia University, and Haozhe Zhang at the Iowa State University [*above, left–right*] send us correct answers to both parts of the previous puzzle; congratulations to all of them. Let us recall the problem. Suppose given $p, X_1, X_2, \cdots$ are iid Bernoulli with parameter p. Let p have a prior distribution with a Lebesgue density g. Suppose $\theta_n = P_g(X_{n+1} = \cdots = X_{2n} = 1 \mid X_1 = \cdots = X_n = 1)$ denote the Bayesian predictive probability that the next n trials will all be successes if the previous n have all been so. Then, find the limit of the sequence θ_n when g is a general Beta density with parameters α, β, and for a general g which is infinitely smooth at $p = 1$.

First consider the case of a Beta prior. In that case, the posterior distribution of p given that $X_1 = \cdots = X_n = 1$ is Beta with parameters $n + \alpha$ and β. Therefore,

$$\theta_n = E_{p \mid X_1 = \cdots = X_n = 1}[P(X_{n+1} = \cdots = X_{2n} = 1 \mid X_1 = \cdots = X_n = 1, p)]$$
$$= E_{p \mid X_1 = \cdots = X_n = 1}(p^n)$$

$$= \frac{\Gamma(\alpha + \beta + n)}{\Gamma(\alpha + n)\,\Gamma(\beta)} \int_0^1 p^n p^{n+\alpha-1}(1-p)^{\beta-1} dp = \frac{\Gamma(\alpha+2n)\,\Gamma(\alpha+\beta+n)}{\Gamma(\alpha+n)\,\Gamma(\alpha+\beta+2n)}$$

By Stirling's approximation to $\Gamma(x)$ as $x \to \infty$, and using the notation ~ to mean that the ratio of the two sequences converges to 1, we now get

$$\theta_n \sim \frac{e^{-\alpha-2n}(1+\frac{\alpha}{2n})^{2n}(2n)^{2n+\alpha}\,e^{-\alpha-\beta-n}(1+\frac{\alpha+\beta}{n})^n\,n^{n+\alpha+\beta}}{e^{-\alpha-\beta-2n}(1+\frac{\alpha+\beta}{2n})^{2n}(2n)^{2n+\alpha+\beta}\,e^{-\alpha-n}(1+\frac{\alpha}{n})^n\,n^{n+\alpha}} \sim 2^{-\beta}.$$

Notice that the limit of θ_n does not depend on α; this is because only the local behavior of g near $p = 1$ matters for the limiting behavior of θ_n. In particular, if p has a uniform prior, then the limit of θ_n is ½ : you ought to be 50:50 about the question *will our Sun last for the next 4.5 billion years?* Very interesting!

Consider now the case of a general prior density g with infinitely smooth local behavior at $p = 1$. Let k be defined as the unique non-negative integer such that $g(1) = \cdots = g^{(k-1)}(1) = 0, g^{(k)}(1) \neq 0$. Then, as in the case of the special Beta prior, $\theta_n = \frac{\int_0^1 p^{2n} g(p) dp}{\int_0^1 p^n g(p) dp}$.

Using Watson's Lemma, and once again, Stirling's approximation,
$$\int_0^1 p^n g(p) dp \sim \frac{(-1)^k g^{(k)}(1)}{k!} \frac{\Gamma(n+1)\,\Gamma(k+1)}{\Gamma(n+k+2)} \sim \frac{(-1)^k g^{(k)}(1)}{n^{k+1}}.$$

Hence, $\theta_n \sim \dfrac{\frac{1}{(2n)^{k+1}}}{\frac{1}{n^{k+1}}} = 2^{-k-1}.$

Profile: Larry Wasserman

As we reported in the last issue, Larry Wasserman was among five IMS Fellows recently elected to the US National Academy of Sciences. We'll be writing about them them in the coming issues, and to start us off, **Stephen E. Fienberg** from Carnegie Mellon University, writes a profile about his colleague and friend:

In May, Larry A. Wasserman was elected to membership in the US National Academy of Sciences. Born in Windsor, Ontario, Larry attended the University of Toronto for both his BSc and PhD. He joined the Department of Statistics at Carnegie Mellon University (CMU) as a postdoctoral fellow in 1988 following completion of his PhD thesis on belief functions, written under the direction of Rob Tibshirani. His thesis was later recognized by the Pierre Robillard Award of the Statistical Society of Canada. Larry quickly rose through the faculty ranks and has remained at CMU, becoming a mainstay in both the Department of Statistics and the Machine Learning Department. Currently, he is also a member of the McWilliams Center for Cosmology and one of the conveners of the Topological Statistics and Statistical Machine Learning groups.

In 1999, Larry received the Presidents' Award of the Committee of Presidents of Statistical Societies, for the Outstanding Statistician Under the Age of 40, and three years later, in 2002, the Centre de Recherches Mathematique de Montreal-Statistical Society of Canada Prize in Statistics. A Fellow of the American Statistical Association, the IMS, and the American Association for the Advancement of Science, Larry delivered the 2013 IMS Rietz Lecture, on topological inference.

Larry's early research at CMU led to his recognition as a leading Bayesian innovator who has integrated insights into the foundations of inference with incisive and applicable methodological contributions. But increasingly over time he challenged conventional Bayesian thinking and argued for frequency-styled calibration of statistical tools. His contributions range from definitive treatments of Bayesian robustness and modern nonparametric estimation, mixture models, multiple testing, privacy, and causal inference, and highly successful collaborations with astrophysicists and statistical geneticists. His legions of collaborators come from across his departments at CMU and across multiple fields and countries.

A prolific contributor to the theoretical and methodological statistics literature, Larry is also an expositor *par excellence* and the author of two highly praised textbooks: *All of Statistics* (the winner of the 2005 DeGroot Prize from the International Society for Bayesian Analysis) and *All of Nonparametric Statistics.* He is a gifted lecturer and his Statistical Learning class in the machine Learning Department is legendary both for its insightfulness and for its demands on the students. Yet they flock to attend.

Beyond his technical and expository contributions, Larry is an

Larry Wasserman (left, pictured with Ed George) presented the 2013 IMS Rietz Lecture at JSM in Montreal

agent provocateur, sometimes tongue in cheek but most often with purpose and insight. I offer two examples.

His essay in the recently publish COPSS volume, *The Rise of the Machines*, begins: "Statistics is the science of learning from data. Machine Learning (ML) is the science of learning from data. These fields are identical in intent although they differ in their history, conventions, emphasis and culture. There is no denying the success and importance of the field of Statistics for science and, more generally, for society. I'm proud to be a part of the field. The focus of this essay is on one challenge (and opportunity) to our Field: the rise of Machine Learning."

In a 2012 essay on refereeing, Larry begins: "Our current peer review is an authoritarian system resembling a priesthood or a guild. It made sense in the 1600's when it was invented. Over 300 years later we are still using the same system. It is time to modernize and democratize our approach to scientific publishing." He goes on to propose a system of open publication with posted reviews and commentary, including rebuttals.

Larry is a great colleague, one who is pushing the boundaries of our field and who is constantly challenging accepted wisdom and conventional thinking. He does so with zest, humor, and great insight. His election to the National Academy of Sciences recognizes these contributions, as well as his more traditional ones.

Preview of Wald lectures: Sara van de Geer

Sara van de Geer is Professor of Statistics in the Department of Mathematics, ETH Zürich. Her work focuses on mathematical statistics, for example, theory for M-estimators in high/infinite dimensions, adaptation to unknown sparsity, semi-parametric theory, confidence sets in high-dimensional models, and concentration of measure for high-dimensional and nonparametric problems. She has (co-)authored four monographs, most recently lecture notes for the Saint-Flour Probability Summer School. She was a council member of the Swiss National Science Foundation 2007–2015, and is President of the Bernoulli Society 2015-2017. She is a Knight in the Order of Orange-Nassau, a member of the German Academy of Sciences Leopoldina, and a correspondent of the Dutch Royal Academy of Sciences. Sara's three Wald Lectures will be given at the World Congress in Toronto, on July 12, 14 and 15.

High-dimensional statistics: a triptych

High-dimensional statistics concerns the situation where the number of parameters p is (much) larger than the number of observations n. This is quite common nowadays, and it has led to the development of new statistical methodology. These lectures present a selected overview of mathematical theory for sparsity inducing methods.

In the first lecture we will highlight the main ingredients for proving sharp oracle inequalities for regularized empirical risk minimizers. The regularization penalty will be taken to be a norm Ω on p-dimensional Euclidean space. Important is that the norm Ω is has a particular feature which we term the triangle property. We present as examples: the ℓ_1-norm, norms generated from cones, the sorted ℓ_1-norm, the nuclear norm for matrices and an extension to tensors. We then show sharp oracle inequalities for a broad class of loss functions.

The second lecture addresses the construction of asymptotic confidence intervals for parameters of interest. Here, we restrict ourselves to the linear and the graphical model. We prove asymptotic normality of de-biased estimators. We consider asymptotic lower bounds for the variance of an approximately unbiased estimator of a one-dimensional parameter as well as Le Cam-type lower bounds. We ascertain the approximate unbiasedness of the de-biased estimator under sparsity conditions and show that it reaches the lower bound.

In the third lecture, we examine the null space property for sparsity inducing norms. The null space property ensures exact recovery of certain sparsity patterns and is moreover a key ingredient for oracle results. We derive this property for the Gram matrix based on n copies of a p-dimensional random variable X, where we require moment conditions for finite dimensional projections of X or the more general small ball property.

The lectures are based on joint work with Andreas Elsener, Jana Janková, Alan Muro and Benjamin Stucky.

Rietz lecture preview: Bin Yu

Bin Yu is Chancellor's Professor in the Departments of Statistics and of Electrical Engineering & Computer Science at the University of California at Berkeley. Her current research interests focus on solving high-dimensional data problems through developments of statistics and machine learning methodologies, algorithms, and theory. Her group is engaged in interdisciplinary research with scientists from genomics, neuroscience, and medicine. She is a Member of the National Academy of Sciences and Fellow of the American Academy of Arts and Sciences. She was a Guggenheim Fellow in 2006, and President of IMS in 2013–14. She was an ICIAM Invited Lecturer in 2011 and Tukey Memorial Lecture of Bernoulli Society in 2011. She is a Fellow of IMS, ASA, IEEE and AAAS. She has served or is serving on numerous journal editorial boards, including *JMLR*, *AOS* and *JASA,* and committees of BMSA of NAS, SAMSI, IPAM and ICERM. Bin will deliver this Rietz Lecture at the World Congress on July 11.

Theory to gain insight and inform practice

Henry L. Rietz, the first president of IMS, published his book *Mathematical Statistics* in 1927. One reviewer wrote in 1928, "Professor Rietz has developed this theory so skillfully that the 'workers in other fields', provided only that they have a passing familiarity with the grammar of mathematics, can secure a satisfactory understanding of the points involved."

In this lecture, I would like to promote the good tradition of mathematical statistics as expressed in Rietz's book in order to gain

insight and inform practice.

In particular, I will recount the beginning of our theoretical study of dictionary learning (DL) as part of a multi-disciplinary project to "map a cell's destiny" in *Drosophila* embryo. I will share insights gained regarding local identifiability of primal and dual formulations of DL. Furthermore, comparing the two formulations is leading us down the path of seeking confidence measures of the learned dictionary elements (corresponding to biologically meaningful regions in *Drosophila* embryo).

Finally, I will present preliminary work using our confidence measures to identify potential knockout (or gene editing) experiments in an iterative interaction between biological and data sciences.

Medallion lecture preview: Nanny Wermuth

Nanny Wermuth is professor emerita at the Division of Mathematical Statistics, Chalmers University of Technology in Gothenburg, Sweden, and affiliated professor at the Medical School of the Gutenberg University in Mainz, Germany. Among her main research interests are multivariate statistical models and their properties, especially graphical Markov models, as well as their applications in the life sciences and in the natural sciences. She has served the profession as, among other positions, president of the International Biometric Society and of the IMS. Nanny's Medallion Lecture will be at JSM in Chicago, on Monday, August 1, at 10:30am. (There are two related sessions that Nanny also highlights below, immediately before and after the Medallion session.)

Tracing Pathways of Dependence—How far did we get?

Tracing pathways of dependence to understand development was a main aim of geneticist Sewall Wright when he formulated - a century ago - linear data generating processes, represented them by directed graphs and evaluated the fit to his data.

Path analysis was generalised with structural equation models by concentrating still on linear relations but including joint responses and hidden variables. Intensive discussions of special aspects were reported in some of the Berkeley symposia from 1945 to 1972.

A different extension, named graphical Markov models, started to be developed in the late 1970s by using Andrej Markov's concept of conditional independence to define missing edges in graphs, which consist of nodes representing variables and of edges allowing conditional dependences. These models permit variables of any type and hence more complex than linear relations. Conditioning sets are defined by the type of graph, which may contain directed and undirected edges and an ordering of the nodes as given, for instance, by time in a hypothesised generating process.

We now have a subclass, named 'traceable regressions', most suitable to model development in ordered single and joint responses together with structure in a set of context variables. The main difficulties were to find (1) testable properties of generated distributions, which needed to concentrate on conditional dependences, in addition to Markov structure, and (2) an operator for graphs which reflect effects of ignoring some of the variables or of conditioning on fixed levels of other variables, or of both combined. These are essential for combining evidence from related, different studies.

In this lecture, I will try to summarise some of the important insights obtained in the last 40 years for traceable regressions and to point towards what I regard as important open questions.

In addition to my lecture, there will be two further sessions [*on the same day*], concerning graphical Markov models, with eight speakers who received their PhD within the last ten years.

The first is *Graphical Markov Models: Extending, Combining, and Evaluating Concepts*. This session is organized by Giovanni Maria Marchetti (University of Florence), with speakers Po-Ling Loh (University of Pennsylvania, Philadelphia), Kayvan Sadeghi (University of Cambridge), Piotr Zwiernik (Pompeu Fabra University, Barcelona) and Bala Rajaratnam (Stanford University), and

The other one is *Recent Enhancements of Graphical Markov Models*. This session is organized by me, and features speakers Monia Lupparelli (University of Bologna), Robin Evans (Oxford University), Caroline Uhler (MIT, Cambridge) and Elias Bareinboim (Purdue University, West Lafayette).

Medallion lecture preview: Vanessa Didelez

Vanessa Didelez has just moved to Germany from the University of Bristol, UK, to be Professor of Statistics and Causal Inference at the Leibniz Institute, University of Bremen. Her research focuses on graphical models and causal inference especially in time-dependent settings, and encompasses aspects of statistics, epidemiology, philosophy and computer science. She obtained her PhD in 2000 from the University of Dortmund under supervision of Iris Pigeot and was appointed Lecturer in Statistics at University College London where she started collaborating with Philip Dawid on a decision theoretic approach to causality. In 2006 she stayed at the Norwegian Centre for Advanced Study establishing an ongoing exchange with Odd Aalen and his group on continuous-time causality. She is known for her contributions to the understanding of Mendelian randomisation as an instrumental variable approach to causal inference in epidemiology. Vanessa's lecture will be on Thursday, July 14 at the World Congress in Toronto.

Causal Reasoning for Events in Continuous Time

We often make statements such as event A was the cause of event B; most statistical causal inference literature would translate this into two binary random variables, and use structural equations, causal DAGs and/or potential outcomes in order to formalise the difference between causation and association. An aspect that is often only implicit is that of temporality: event A can only be a cause of B if it happens earlier—it therefore seems more natural to adopt a stochastic process approach instead. As a concrete example, a public health authority may want to know whether home visits by nurses to elderly patients should be more or less frequent with view to subsequent hospitalisation events and survival. If the frequency of visits is to be increased, with financial implications, then we certainly want to know whether they are causally affecting hospitalisation, and not just whether both are associated.

Dynamic associations among different types of events in continuous time can be represented by local independence graphs as developed by Didelez (2008). Intuitively we say that a process is locally independent of another one if its short-term prediction is not improved by using the past of the other process, similar to Granger non-causality; the graphical representation uses nodes for processes or events and the absence of a directed edge for local independence. Important independence properties can be read off these—possibly cyclic—graphs using delta-separation (Didelez, 2006) which generalises d-separation from DAGs. In related work, Røysland (2011, 2012) showed

how causal inference based on inverse probability weighting (IPW), well known for longitudinal data (Robins et al., 2000), can be extended to the continuous-time situation using a martingale approach.

In the work that I will present at the Medallion lecture (joint work with Kjetil Røysland, Odd Aalen and Theis Lange), we start by defining causal validity of local independence graphs in terms of interventions, which in the context of events in time take the form of modifications to the intensities of specific processes, e.g. a treatment process; causal validity is given if the specification of the dynamic system is rich enough to model such an intervention. This is similar to what is known as 'modularity' for causal DAGs. We then combine the above previous developments to give graphical rules for the identifiability of the effect of such interventions via IPW; these rules can be regarded as characterising 'unobserved confounding'. Re-weighting then simply replaces the observed intensity by the one given by the intervention of interest. For this to be meaningful, causal validity and identifiability are crucial assumptions. As an aside, we find that it is helpful to also use causal reasoning when faced with censoring as the target of inference can often be regarded as the population in which censoring is prevented, i.e. its intensity is set to zero. We apply our theoretical results to the example of cancer screening in Norway.

Our approach can be regarded as the time-continuous version of Dawid & Didelez (2010), who develop a decision

theoretic approach for sequential decisions in longitudinal settings and use a graphical representation with influence diagrams that include decision nodes; specifically causal validity is analogous to the extended stability of Dawid & Didelez (2010). This provides an explicit representation of the target of inference as well as allowing us to use simple graphical rules to check identifiability. While it is common to phrase causal queries in terms of potential outcomes or counterfactuals, it is worth emphasising that the decision theoretic framework and the way we define causal validity for events and stochastic processes do not require these. The question at hand is simply phrased in terms of inference based on a system that is observed under certain conditions to a system under different conditions, namely such that the intensity for certain types of events are changed, which offers greater generality.

References:

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Medallion lecture summary: Peter Diggle

Peter Diggle gave this Medallion Lecture at the ENAR meeting in March. Peter began his academic career in 1974 as Lecturer in Statistics at the University of Newcastle upon Tyne, UK. Between 1984 and 1988 he was Senior Research Scientist, then Principal Research Scientist, then Chief Research Scientist in the CSIRO Division of Mathematics and Statistics in Canberra. Since 1988 he has been at Lancaster University, where his current position is Distinguished University Professor of Statistics in the Faculty of Health and Medicine. He also holds Adjunct positions at Johns Hopkins, Yale and Columbia Universities, and is president of the Royal Statistical Society (2014–16). His research interests are in statistical methods for spatial and longitudinal data analysis and their applications in the biomedical and health sciences, with a particular focus on environmental and tropical disease epidemiology.

Model-Based Geostatistics for Prevalence Mapping in Low-Resource Settings

In low-resource settings, prevalence mapping plays an important role in determining priority areas for large-scale prevention and treatment programmes. Because disease registries are lacking, prevalence mapping relies on field data collected from prevalence surveys of communities within the region of interest. Only a small fraction of at-risk communities can be included in these surveys, and mapping at unsampled locations necessarily involves some form of interpolation or smoothing of the data. The precision of the interpolated maps can be improved by exploiting the availability of remotely sensed images that act as proxies for environmental risk factors.

A standard geostatistical model for data of this kind is a generalized linear mixed model,

$$Y_i \sim \mathrm{Bin}\{m_i, P(x_i)\}$$
$$\log[P(x_i)/\{1-P(x_i)\}] = z(x_i)'\beta + S(x_i) + U_i,$$

where Y_i is the number of positives in a sample of m_i individuals at location x_i, $z(x)$ is a vector of spatially referenced explanatory variables, $S(x)$ is a spatially correlated Gaussian process and the U_i are uncorrelated Gaussian random variables. The roles of $S(x)$ and U_i are to account for spatially structured and unstructured variation, respectively, that is not explained by $z(x)$.

This model has been used in particular to assist the operation of pan-African control programmes for two vector-borne diseases, *onchocerciasis* (river blindness) and *lymphatic filariasis* (elephantiasis). The control strategy is based on prophylactic administration of a filaricide, Mectizan, to whole communities in affected areas. In this context, estimating prevalence at a particular location is less important than predicting whether prevalence exceeds a policy-relevant threshold. For example, the operation of the control programmes has been hampered by the recognition that people heavily infected with a third disease, *Loa loa* (eyeworm), are at risk of experiencing severe, occasionally fatal, adverse reactions to Mectizan. This has resulted in a policy that

precautionary measures must be taken before the drug is administered in a community where prevalence of eyeworm is greater than 20%. Accordingly, the map (left) shows the predictive probability, at each location, that this threshold is crossed. The map effectively delineates areas that are "safe", "unsafe" (predictive probabilities close to zero or one, respectively) and intermediate areas (in gray) where more information is needed.

Work is in progress on the following extension to the eyeworm problem. It is now known that those at risk of experiencing severe reaction to Mectizan are people whose blood is heavily infected with *Loa loa* parasites, more than 30,000 parasites per ml of blood. Determining infection levels routinely in the field is difficult. However the distribution of individual infection levels, Y, within a community is well described by a Weibull distribution, $P(Y>y)=P\exp\{-(y/L)^\kappa\} : y \geq 0$, where $\kappa \approx 0.5$ and (P, L) vary randomly between communities. Specifically, $S_1(x) = \log\{P/(1-P)\}$ and $S_2(x) = \log L$ can be modelled as a bivariate Gaussian process and the correlation between the two exploited to enable prediction of $P(Y>30,000)$ in a newly sampled community for which only prevalence data are available. Two general conclusions from this work are that in low resource settings: geostatistical modelling of prevalence data can deliver practical solutions to problems that would otherwise be intractable; and that predictive probability mapping is often a more useful inferential paradigm than either testing or estimation.

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Zoure, H.G.M., Noma, M., Tekle, A.H., Amazigo, U.V., Diggle, P.J., Giorgi, E. and Remme, J.H.F. (2014). The geographic distribution of onchocerciasis in the 20 participating countries of the African Programme for Onchocerciasis Control: 2. Pre-control endemicity levels and estimated number infected. *Parasites and Vectors*, **7**, 326

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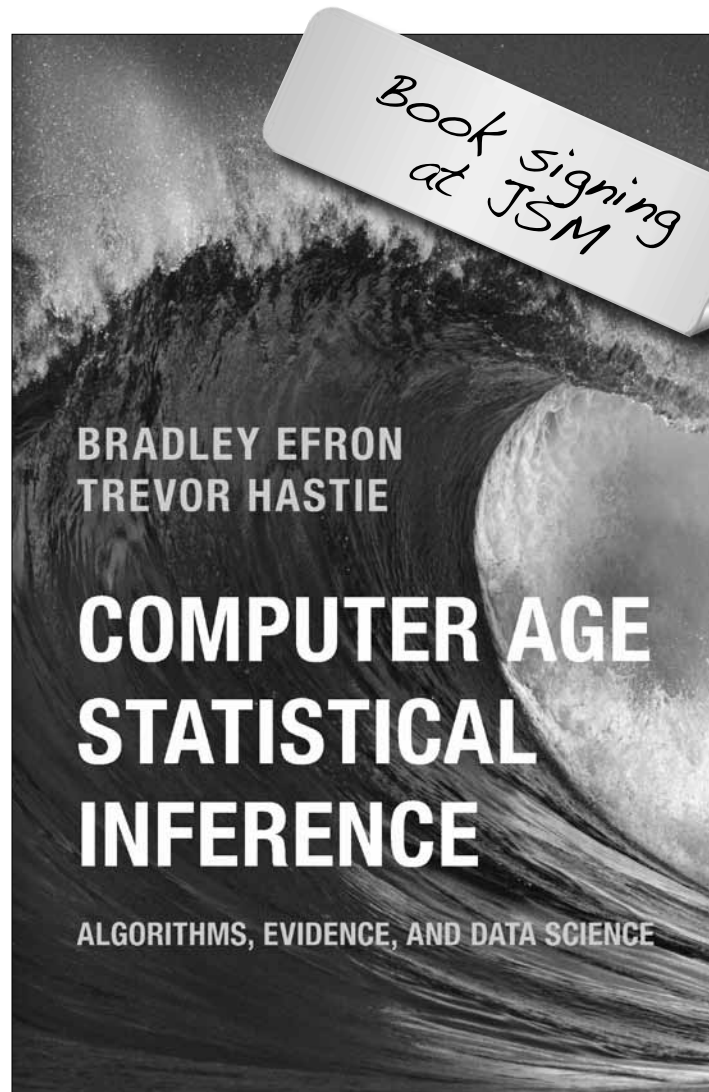# New *IMS Monographs* book by Bradley Efron and Trevor Hastie

We are pleased to introduce the latest in the popular IMS Monographs series, published in a cooperative arrangement with Cambridge University Press. *Computer Age Statistical Inference: Algorithms, Evidence, and Data Science* is written by Bradley Efron and Trevor Hastie, both from Stanford University. Published in the UK in July and the USA in September, you can get your copy (with your **40% IMS member's discount**) from www.cambridge.org/ims

If you're going to JSM you can pick up a copy there: Brad and Trevor will be doing a **book signing** at the Cambridge University Press stand in the Expo Hall on **Tuesday, August 2 at 4pm**.

The 21st century has seen a breathtaking expansion of statistical methodology, both in scope and influence. "Big data," "data science," and "machine learning" have become familiar terms in the news, as statistical methods are brought to bear upon the enormous data sets of modern science and commerce. How did we get here? And where are we going?

This book takes us on an exhilarating journey through the revolution in data analysis following the introduction of electronic computation in the 1950s. Beginning with classical inferential theories—Bayesian, frequentist, Fisherian—individual chapters take up a series of influential topics: survival analysis, logistic regression, empirical Bayes, the jackknife and bootstrap, random forests, neural networks, Markov Chain Monte Carlo, inference after model selection, and dozens more. The distinctly modern approach integrates methodology and algorithms with statistical inference. The book ends with speculation on the future direction of statistics and data science.

Hardback ISBN 9781107149892: US$~~74.99~~ **IMS members $44.99**

Book signing at JSM

**BRADLEY EFRON
TREVOR HASTIE**

COMPUTER AGE STATISTICAL INFERENCE

ALGORITHMS, EVIDENCE, AND DATA SCIENCE

"How and why is computational statistics taking over the world? In this serious work of synthesis that is also fun to read, Efron and Hastie, two pioneers in the integration of parametric and nonparametric statistical ideas, give their take on the unreasonable effectiveness of statistics and machine learning in the context of a series of clear, historically informed examples."
— Andrew Gelman, Columbia University

"A masterful guide to how the inferential bases of classical statistics can provide a principled disciplinary frame for the data science of the twenty-first century."
— Stephen Stigler, University of Chicago

"This is a guided tour of modern statistics that emphasizes the conceptual and computational advances of the last century. Authored by two masters of the field, it offers just the right mix of mathematical analysis and insightful commentary."
— Hal Varian, Google

"Efron and Hastie... have managed brilliantly to weave the fiber of 250 years of statistical inference into the more recent historical mechanization of computing. This book provides the reader with a mid-level overview of the last 60-some years by detailing the nuances of a statistical community that, historically, has been self-segregated into camps of Bayes, frequentist and Fisher, yet in more recent years, has been unified by advances in computing."
— Rebecca Doerge, Carnegie Mellon University

Project Euclid News

Two Open Access Probability Journals Join Project Euclid

We are excited to announce that both the *Electronic Journal of Probability* and *Electronic Communications in Probability* are now available in Project Euclid. Co-published by the Institute of Mathematical Statistics and the Bernoulli Society, these titles join other high-quality publications in probability and statistics available at http://projecteuclid.org.

The *Electronic Journal of Probability* is an open access journal publishing full-length research articles in probability theory. *Electronic Communications in Probability* is an open access journal publishing short research articles in probability theory. Both publish papers in all areas of probability, "only accepting papers of high quality in terms of both scientific contents and the presentation of the results."

For the past twenty years, the Electronic Journal of Probability and Electronic Communications in Probability have helped shape the field of probability theory as two of the longest-published open access journals in this area of mathematics. Both journals' archives, as well as all future volumes, will be available at http://projecteuclid.org, joining over 1.4 million pages of openly available scholarship in mathematics and statistics on the Project Euclid platform.

Project Euclid's ongoing partnership with the Bernoulli Society and the IMS is a fulfilment of Project Euclid's mission to support sustainable independent and society publishing in mathematics and statistics. "The long-standing partnership between the IMS, the Bernoulli Society, and Project Euclid is evidence of the viability of sustainable, not-for-profit STEM publishing models," says David Ruddy, Director of Information Technology for Project Euclid.

"Project Euclid is proud to serve as a new home for the Electronic Journal of Probability and Electronic Communications in Probability."

Entire CBMS Monograph Series Available in Project Euclid

Project Euclid is delighted to announce that the entire *NSF–CBMS Regional Conference Series in Probability and Statistics* is now available at http://projecteuclid.org/cbms.

The lecture notes in this series cover a variety of essential topics in mathematical statistics ranging from probability models to process theory.

This series is co-published by the Institute of Mathematical Statistics and the American Statistical Association. It is sponsored by the Conference Board of the Mathematical Sciences and supported by the National Science Foundation. All volumes are openly accessible through Project Euclid, with print editions also available for purchase.

About Project Euclid

Project Euclid is a collaborative partnership between Cornell University Library and Duke University Press, which seeks to advance scholarly communication in theoretical and applied mathematics and statistics through partnerships with independent and society publishers. It was created to provide a platform for small publishers of scholarly journals to move from print to electronic in a cost-effective way.

Through a combination of support by subscribing libraries and participating publishers, Project Euclid has made 70% of its journal articles available as open access. Project Euclid provides access to over **1.4 million pages** of open-access content.

In 1999, Cornell University Library received a grant from the Andrew W. Mellon Foundation for the development of an online publishing service designed to support the transition for small, non-commercial mathematics journals from paper to digital distribution. Duke University Press, which had experience in putting its own math journals online and a similar interest in assisting non-commercial math journals, worked as Cornell's partner in developing the grant application and then in developing Project Euclid's publishing model.

Cornell launched Project Euclid in May 2003 with nineteen journals. In July 2008, Cornell University Library and Duke University Press established a joint venture and began co-managing Project Euclid. Duke assumed responsibility for "marketing, financial, and order fulfillment workflows" while Cornell continued to provide and support Project Euclid's IT infrastructure.

Currently, Project Euclid hosts both open access journals and monographs, as well as its Prime collection of peer-reviewed titles. At the time of writing, there are 82 journal titles, from 48 publishers from around the world.

In 2011, Project Euclid received the 2011 Division Award from the Physics-Astronomy-Mathematics Division of the Special Libraries Association. Given annually, this award recognizes significant contributions to the literature of physics, mathematics, or astronomy, and honors work that demonstrably improves the exchange of information within these three disciplines. The award also takes into consideration projects that benefit libraries.

Information from projecteuclid.org and Wikipedia

Recent papers: two IMS-supported journals

Bayesian Analysis Volume 11, No 2, June 2016

Bayesian Analysis is an electronic journal of the International Society for Bayesian Analysis. It seeks to publish a wide range of articles that demonstrate or discuss Bayesian methods in some theoretical or applied context. The journal welcomes submissions involving presentation of new computational and statistical methods; critical reviews and discussions of existing approaches; historical perspectives; description of important scientific or policy application areas; case studies; and methods for experimental design, data collection, data sharing, or data mining.
Access papers at http://projecteuclid.org/euclid.ba

Brazilian Journal of Probability and Statistics Volume 30, No 2, May 2016

The *Brazilian Journal of Probability and Statistics* is an official publication of the Brazilian Statistical Association and is supported by the IMS. It is published four times a year, in February, May, August, and December. The Journal publishes papers in applied probability, applied statistics, computational statistics, mathematical statistics, probability theory and stochastic processes.
Access papers at http://projecteuclid.org/euclid.bjps

Vlada's Point: Peer Review II — An Idea

Contributing Editor Vlada Limic has been thinking about ways in which the peer review process could be improved. She writes:

A young postdoc enters a renowned senior professor's office one day. The master is sighing over a printout of an article, and finally says [1]: "I have read this paper in detail, I checked that the argument is entirely correct line for line. But if you'd ask me what it is, I would not be able to tell... and now I must write a report!" More sighs follow. The apprentice is taken aback by this striking piece of news, and thinks, *"Could it be that with all that knowledge, experience, wisdom, creativity and problem-solving capacity, one still faces these challenges?"*

This scene took place more than sixteen years ago, but it could have equally been 32 years ago, or yesterday. While most of us know that this is by far not the saddest ending of a peer review round, it is already significant.

Now imagine a slightly different world in which, along with all the manuscript-central capacities, a free "self-service web booth" tool exists. Each anonymous peer-reviewer [2], novice and veteran alike, has the option of using it whenever in need of contacting the author(s) about the article under review. The attribute *anonymous* is crucial—if the peer review were done openly today, like it was done 100 or 70 years ago, we would not need much more than the phone and the internet. Even hand-written "snail mail" would typically work quite well.

Multiple changes in overall scientific valorization seem to be required before anonymity [3] could be lifted here.

So taking the anonymity for granted, I ask you again: imagine having access today to the above web booth. It's easy if you can!

Consider your most recent peer review assignment. The topic is exciting, the paper solves an important/interesting problem, you know some but not all of the concepts or techniques used. The task looks like a great opportunity for learning.

However, suppose that once you start reading the preprint in detail, you realize that either you are misunderstanding the logic, or there is a non-trivial gap in the argument in Lemma 2, which (as you keep reading) propagates to Lemma 7, and finally undermines the proof of the main result.

Are you missing something, or is it really a gap? How important is it? Can it be fixed?

Thinking about it harder, in brief but intensive intervals spaced over several weeks, and finally finding the time to write that one- to two-page report to the editors explaining your concerns, is not the only option.

You can go to the web booth platform, open there a secured (login/password protected) discussion dedicated to your assignment, simultaneously invite the author(s) to it and notify the editorial board, and finally ask your questions directly, without having to disclose your identity (or that of the AE handling the submission).

While the AE will not be able to participate in the discussion (unless they open it themselves), they can confirm (if needed) that your web booth invitation issued to the authors is genuine.

Via your secure private channel, you can exchange text messages (posts), pdf, jpeg (and perhaps other format) files as attachments with the author team, while staying anonymous. The entire electronic discussion can be printed out at any time by either party. As usual, if a login and/or a password is lost, they can be easily recovered. Each participant is notified each time a new post by the other(s) arrives. The discussion stays active as long as something was posted within the last so-many-months (depending on storage space), otherwise (followed by several email notifications to the participants) it gets erased.

Now imagine, for a change, that you are an author of the above article under review, and that you have just received a one or two page long report from the journal describing how your Lemma 2, then Lemma 7, and finally the main theorem are plainly wrong. And indeed, one of the hypotheses was missing or mistyped, the inclusion or correction of which makes Lemma 2 and everything else sound. But hey, the machine already pushed the editors into a decision about your submission: it is *requires major revision* at best. A letter of response with detailed explanations is the least that is now expected from you in order to put the review back in motion [4].

Would you not prefer to have been promptly and directly contacted by the reviewer?

My final point for today: the just described communication tool already exists, and in more than one incarnation. None of them is alas openly and freely available to general academic community. Still, there is hope on the horizon...

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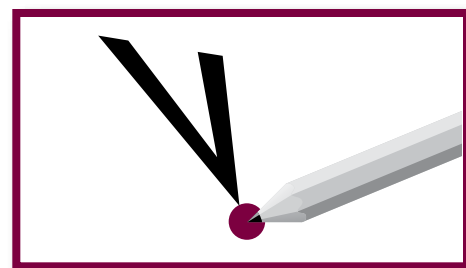
1 The words are approximate, the meaning is exact.
2 …regardless of the journal, or publisher (s)he has committed to serving.
3 …which protects the reviewer from potential open or disguised retaliation, in case their report includes reservations or disapproval.
4 This "ping-pong" can go on for several rounds, the process could well last for years.

Treasurer's Report 2015

Introduction

This report details membership and subscription data for calendar year end 2015. The 2015 fiscal year end audit report will be published separately in the Fall of 2016 after the auditors have completed the annual process.

In 2015, the total number of IMS paid members decreased, but the total number of members increased. Subscriptions by institutions also decreased this past year. The financial status of the Institute continues to be stable, and actions have been taken to ensure its long-term stability. Details of the events of the past year, membership and subscription data, sales data are given below.

Publications

The following is a list of all current IMS core, co-sponsored, supported and affiliated journals:

IMS Core Print/Electronic Publications
Annals of Probability; Annals of Applied Probability; Annals of Statistics; Annals of Applied Statistics; Statistical Science; Current Index to Statistics; IMS Collections; IMS Monographs; IMS Textbooks; IMS Bulletin

Co-Sponsored Print/Electronic Publications
Electronic Communications in Probability; Electronic Journal of Probability; Electronic Journal of Statistics; Journal of Computational and Graphical Statistics; NSF–CBMS Series in Probability and Statistics; Probability Surveys; Statistics Surveys

Supported Publications
ALEA: Latin American Journal of Probability and Mathematical Statistics; Annales de l'Institut Henri Poincaré (B); Bayesian Analysis; Bernoulli; Bernoulli News; Brazilian Journal of Probability and Statistics; Stochastic Systems

Affiliated Publications
Probability and Mathematical Statistics

Membership Data

Total individual paid membership in the Institute as of December 31, 2015 decreased 1.3% from December 31, 2014. Table 1 presents the membership data back to 2008. As can be seen, the paid membership reached a high of 3156 in 2008 and has been decreasing since then. This trend is similar to that of other professional societies. Nevertheless, this is clearly an area of concern, and the IMS Executive Committee continues to look for ways to address this issue.

TABLE 1: Membership, by Calendar Year

	2008	2009	2010	2011	2012*	2013	2014	2015	% change
Regular	2,179	2,045	1,970	1,863	1,792	1,737	1,616	1,587	-1.8%
Life/Retired Life	402	455	477	495	498	501	516	528	2.3%
Reduced Country/Retired/ IMS China	633	606	399	401	395	369	364	376	3.3%
New Graduate	122	158	149	113	112	110	87	58	-33.3%
Student	1,328	1,368	1,160	1,116	1,023	1,036	1,187	1,236	4.1%
Total	4,664	4,632	4,155	3,988	3,820	3,753	3,770	3,785	0.4%
Total excluding free members (students, and in 2008–9 IMS China)	3,156	3,084	2,995	2,872	2,797	2,717	2,583	2,549	-1.3%

* *2012 member figures contain some estimates*

Geographic Distribution of Members.
The IMS membership is currently distributed as follows (see pie chart, right): 62% United States; 18% Europe; 11% Asia; 4% Canada; 3% Australia and New Zealand; <2% South America, Mexico and the Caribbean; <1% Africa.
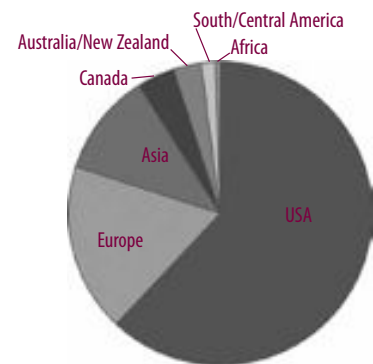
Subscription Data

Selection of Journals by Members:
Print subscriptions by members continued to decrease in 2015, as expected, because members are opting to reduce their use of print while enjoying free electronic access to all journals. Members are charged actual cost for print copies of journals, so there is no net loss or gain to the bottom line from changes in print subscriptions by members. Table 2 (below) shows the current selection of print journals by members.

TABLE 2: Member** subscriptions, by calendar year

PRINT (paid)	2008	2009	2010	2011	2012	2013	2014	2015	% change
AAP	428	382	280	197	126	84	100	80	-20.0%
AOP	481	416	298	218	184	99	108	97	-10.2%
AOAS	1,160	1,089	714	480	379	232	171	141	-17.5%
AOS	1,323	1,109	763	555	447	265	284	262	-7.7%
STS	1,880	1,680	1,310	1,035	869	532	534	464	-13.1%
Total	5,272	4,676	3,365	2,485	2,005	1,212	1,197	1,044	-12.8%

** *Previously this information was reported as all members (including organizational), however data has been reformatted to show individual members only, to reflect the change in classification and to better view the current status of the data.*

The IMS offers joint membership opportunities with: the Bernoulli Society (BS); International Statistical Institute/Bernoulli Society (ISI/BS); International Society for Bayesian Analysis (ISBA); and Applied Probability Society/INFORMS (APS/INFORMS).

Institutional Subscription Data

Table 3 (right) presents comparative subscription data for institutions to each of our scientific journals for 2015 and previous years. Almost all journals experienced subscription decreases in 2015. Overall institutional subscriptions decreased by 1.6%. The decrease to IMS journals, specifically, was 2.2%. We are continuing to see increases in our bundled offerings which are discounted on the whole. Approximately 60% of the non-member subscribers to IMS journals are in USA and Canada, with the remaining subscribers distributed throughout the world.

Book Sales Data

Tables 4 and 5 (below) present sales data for all IMS book series.

In 2010, the IMS published its first volumes in a cooperative arrangement with Cambridge University Press to publish two series, *IMS Monographs* and *IMS Textbooks*.

TABLE 3: Institutional paid subscriptions, by calendar year

PRINT	2008	2009	2010	2011	2012	2013	2014	2015	% change
AAP	636	680	684	645	687	632	600	591	-1.5%
AOP	900	948	967	901	908	839	795	779	-2.0%
AOAS	174	247	320	331	380	342	346	368	6.4%
AOS	1,118	1,154	1,158	1,127	1,132	1,008	985	948	-3.8%
STS	865	890	899	861	865	769	753	717	-4.8%
Bulletin	174	176	166	142	128	169	102	96	-5.9%
CIS	295	297	267	273	249	229	216	199	-7.9%
AIHP ˢ	228	271	286	289	326	324	297	305	2.7%
Bernoulli ˢ	198	264	278	280	321	307	292	299	2.4%
BJPS ˢ	n/a	64	78	88	117	119	124	135	8.9%
Total	4,588	4,991	5,101	4,966	5,001	4,738	4,510	4,437	-1.6%
Total IMS journals	3,693	3,919	4,028	3,865	3,888	3,590	3,479	3,403	-2.2%

ˢ *denotes IMS-supported journals. Numbers in* [brackets] *are prior to journal becoming IMS-supported.*

Sales of these volumes are going very well. The *NSF–CBMS Regional Conference Series* published no new volumes in 2015. The *IMS Collections* series and the *IMS Lecture Notes–Monograph Series* have ceased publication.

Financial and Audit Report

The fiscal year ended December 31, 2015. The external audit of the IMS will have been completed in July 2016.

The full audit report will appear in the *IMS Bulletin* in the Fall.

Conclusion

The IMS Executive Committee has reviewed all data in this report. A long term financial plan is already in place and the IMS continues to be strong and stable financially. The decreases in institutional subscriptions is being felt across the market and is not unexpected. The IMS leadership began planning for these decreases over 10 years ago and has ensured that IMS resources are shored up to protect the long-term stability and growth of the society.

Jean Opsomer, IMS Treasurer

TABLE 4: *Total sales from the* NSF-CBMS Regional Conference Series, *the* Lecture Notes–Monograph Series, *and* IMS Collections

	to 2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Total *NSF-CBMS* sales (9 volumes)	5,962	57	108	57	13	40	12	5	**6,254**
Total *LNMS* sales (58 volumes)	28,041	235	297	124	40	9	19	15	**28,780**
Total *IMS Collections* sales (10 volumes)	n/a	9	3	5	3	7	4	4	**35**

TABLE 5: *Total sales of* IMS Monographs *and* IMS Textbooks

Book	to 2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
IMS Monographs (four volumes published so far, in 2010, 2012, 2013 and 2014)	n/a	n/a	660	586	789	604	1046	543	**4,228**
IMS Textbooks (six volumes published to date, in 2010, 2013, 2014, 2014, 2014 and 2015)	n/a	n/a	639	491	326	636	1093	1254	**4,439**
Total Monographs & Textbooks sales	n/a	n/a	**1,299**	**1,077**	**1,115**	**1,240**	**2,139**	**1,797**	**8,667**

IMS meetings around the world

Joint Statistical Meetings: 2016–2020

IMS sponsored meeting
JSM 2016
July 30–August 4, 2016
Chicago, IL
w http://amstat.org/meetings/jsm/2016
The 2016 Joint Statistical Meetings will be held July 30 to August 4 at McCormick Place, 2301 South Lake Shore Drive, Chicago, IL 60616. The theme of JSM 2016 is "The Extraordinary Power of Statistics."

The IMS program chair for invited sessions is Jan Hannig, University of North Carolina **e** jan.hannig@unc.edu. The IMS contributed program chair is Alexander Aue, University of California, Davis **e** aaue@ucdavis.edu

The program is online: https://www.amstat.org/meetings/jsm/2016/onlineprogram/index.cfm

The early-bird registration deadline was June 1. The 2015 JSM housing reservations went very quickly, so if you are planning to attend, be sure to book your accommodation via the JSM website as soon as possible.

Workshops for Junior Researchers: The successful series of writing workshops for junior researchers continues this year, and is complemented for the first time by a new Reviewing & Editing workshop. See http://www.amstat.org/meetings/wwjr/

Advice for first-timers at JSM: Check out the JSM website for some helpful tips if it is your first time at JSM. It's a really big meeting, with thousands of people attending from all over the world, so it's very common to feel a bit overwhelmed, and to have the sense that you're missing out on sessions. See https://www.amstat.org/meetings/jsm/2016/firsttimeattendees.cfm

ASA President's Invited Speaker announced: The ASA President's Invited Speaker for JSM 2016 is Joe Palca, a science correspondent for National Public Radio (NPR). Since joining NPR in 1992, Palca has covered a range of science topics, but is currently focused on the eponymous series, Joe's Big Idea (http://www.npr.org/series/156490415/joes-big-idea), an NPR experiment exploring how ideas become innovations and inventions.

Professional Development at JSM: JSM 2016 will feature 46 Professional Development offerings: Continuing Education short courses, Computer Technology Workshops, and Personal Skills Development Workshops. Search the online program for CE, CTW and PSD: see http://www.amstat.org/meetings/jsm/2016/professionaldevelopment.cfm

IMS sponsored meeting
18th Meeting of New Researchers in Statistics and Probability
University of Wisconsin–Madison
July 28–30, 2016 (immediately before JSM)
w www.stat.wisc.edu/imsnrc18/about.html

IMS sponsored meetings: JSM dates for 2017–2021

IMS Annual Meeting @ JSM 2017: **July 29–August 3, 2017, Baltimore, MD**	**JSM 2018** **July 28–August 2, 2018** **Vancouver, Canada**	**IMS Annual Meeting @ JSM 2019** **July 27–August 1, 2019, Denver, CO**	**JSM 2020** **August 1–6, 2020** **Philadelphia, PA**	**IMS Annual Meeting @ JSM 2021** **August 7–12, 2021, Seattle, WA**

More IMS meetings around the world

Peter Hall Memorial Conference
September 30–October 1, 2016
Conference Center, University of California, Davis

UPDATED

w http://www.stat.ucdavis.edu/hallmemorialconference/

Please join the UC Davis Department of Statistics for the Peter Hall Memorial Conference in honor of Distinguished Professor Peter Hall who sadly passed away in January 2016.

The confirmed speakers so far for the Peter Hall Memorial Conference are:

- Jeannie Hall, Melbourne, Australia: *Memorial Session*
- Rudy Beran, UC Davis: *"On double bootstrap asymptotics"*
- Peter Bickel, UC Berkeley: *"The bootstrap in some novel environments"*
- Tony Cai, University of Pennsylvania: *"Adaptive estimation of a planar convex set"*
- Song Xi Chen, Iowa State University: *TBC*
- Ming-Yen Cheng, National Taiwan University: *"A simple and adaptive two-sample test in high dimensions"*
- Aurore Delaigle, University of Melbourne: *TBC*
- Jianqing Fan, Princeton University: *TBC*
- Frédéric Ferraty, University of Toulouse: *"Variable selection in high-dimensional nonparametric regression setting "*
- Jiashun Jin, Carnegie Mellon University: *"Innovated higher criticism and statisticians' networks"*
- Iain Johnstone, Stanford University: *TBC*
- Runze Li, Pennsylvania State University: *"Projection test for high-dimensional mean vectors with optimal direction"*
- Steve Marron, University of North Carolina: *"High dimension low sample size asymptotics"*
- Byeong Park, Seoul National University: *"Smooth backfitting in errors-in-variables additive models"*
- Terry Speed, Melbourne and UC Berkeley: *TBC*
- Matt Wand, University of Technology, Sydney: *"Fast approximate inference for arbitrarily large statistical models via message passing "*
- Alan Welsh, Australian National University: *"Early work on order statistics; research and teaching"*
- Fang Yao, University of Toronto: *"Mixture models and densities for functional data"*

The full schedule of events and speaker abstracts will be posted soon. Registration is open now: http://www.stat.ucdavis.edu/hallmemorialconference/register.php

Peter Hall was the IMS Wald lecturer in 2006

If you would like to give a short contributed talk please complete the form on the website. Space for contributed talks is limited and so you may be asked to provide a poster instead. Talks could be as short as five minutes depending on the number of contributors.

IMS co-sponsored meeting

NEW

Random processes and time series: theory and applications (A conference in honor of Murray Rosenblatt)
October 21–23, 2016
La Jolla, California, USA

w http://www.math.ucsd.edu/~rosenblattconf/

This conference will feature research on the topic of random processes and time series,

both theory and applications. The conference celebrates the research of IMS Fellow Murray Rosenblatt. Further information about Professor Murray Rosenblatt is at http://math.ucsd.edu/~williams/mrosenb.html

The conference will launch the Murray and Adylin Rosenblatt Endowed Lecture Series in Applied Mathematics. The two inaugural lecturers are Cathy Constable, Scripps Institution of Oceanography, UC San Diego, and Robert Engle, New York University.

The conference will also feature the following plenary speakers: Richard Bradley, Indiana University; David Brillinger, UC Berkeley; Richard Davis, Columbia University; Larry Goldstein, USC; Keh-Shin Lii, UC Riverside; Magda Peligrad, University of Cincinnati; Dimitris Politis, UC San Diego; Philip Stark, UC Berkeley; Murad Taqqu, Boston University; and Wei Biao Wu, University of Chicago.

Registration—free but required—is open to researchers who have a research interest in the topic of random processes and time series and are affiliated with Universities or industrial or government research institutions. This includes current postdocs and PhD students.

More IMS meetings around the world

IMS co-sponsored meeting
9th World Congress on Probability and Statistics
July 11–15, 2016. Toronto, Canada
w http://www.fields.utoronto.ca/programs/scientific/16-17/WC2016/
This meeting is jointly sponsored by the Bernoulli Society and the IMS. The Scientific Programme Chair is Alison Etheridge. The Local Chair is Tom Salisbury. The 9th World Congress on Probability and Statistics will be hosted by the Fields Institute.

IMS sponsored meeting
Joint 2018 IMS Annual Meeting and 12th International Vilnius Conference on Probability Theory & Mathematical Statistics
July 2–6, 2018
Vilnius, Lithuania
w TBC
We are please to announce that the 2018 IMS Annual Meeting will be held in beautiful Vilnius, the capital of Lithuania, in conjunction with the 12th Vilnius Conference on Probability Theory and Mathematical Statistics. The Program Co-chairs are Peter Bühlmann (IMS) and Vygantas Paulauskas (Vilnius). The Local Chair is Remigijus Leipus. Details to follow, but mark your calendars!

IMS co-sponsored meeting
2017 IMS-China International Conference on Statistics and Probability
June 28–July 1, 2017
Nanning, Guangxi Province, China
w TBC
Local organizing committee chair: Zijia Peng, Guangxi University for Nationalities, China **e** pengzijia@126.com. Scientific program committee chair: Ming Yuan, University of Wisconsin–Madison, USA **e** myuan@stat.wisc.edu. The website is under construction.

IMS co-sponsored meeting
WNAR Annual Meeting in conjunction with the XXVIII International Biometric Conference
July 10–15, 2016, Victoria, BC, Canada
w http://biometricconference.org/
The next WNAR Annual Meeting, in conjunction with the XXVIII International Biometric Conference (IBC2016), will be held July 10–15, 2016 at the Victoria Conference Centre in Victoria, British Columbia, Canada. A list of invited sessions is at http://biometricconference.org/invited-sessions/. There will also be four full day short courses.

IMS co-sponsored meeting
39th Conference on Stochastic Processes and their Applications (SPA)
July 24–28, 2017
Moscow, Russia
w TBC

IMS co-sponsored meeting
Reproducibility of Research: Issues and Proposed Remedies
March 8–10, 2017
Washington DC, USA
w http://www.nasonline.org/programs/sackler-colloquia/upcoming-colloquia/
This meeting is one of the Arthur M. Sackler Colloquia, which address scientific topics of broad and current interest that cut across the boundaries of traditional disciplines.

IMS co-sponsored meeting
6th IMS-FIPS (Finance, Insurance, Probability & Statistics) Workshop
July 7–9, 2016. Edmonton, Alberta, Canada
w http://www.mathfinance2016.com
The primary purpose of the workshop is to bring together a global cast of leading academic experts, practitioners and junior researchers to share research that underscores the contributions of probability and statistics to the development of quantitative models, methods, techniques and technologies in the fields of finance and insurance.

ENAR 2017–2019 dates
IMS sponsored meetings
March 12–15, 2017: in Washington DC
March 25–28, 2018: in Atlanta, GA
March 24–27, 2019: in Philadelphia, PA
w http://www.enar.org/meetings/future.cfm

IMS co-sponsored meeting
The 10th ICSA International Conference
December 19–22, 2016
Shanghai Jiao Tong University, China
w http://www.math.sjtu.edu.cn/conference/2016icsa/
The theme is *Global Growth of Modern Statistics in the 21st Century*. Plenary speakers are: Jim Berger, Tony Cai, Kai-Tai Fang, Zhiming Ma, Marc A. Suchard, Lee-Jen Wei and C.F. Jeff Wu.

Other meetings and events around the world

Workshop on Fractals, Ergodic Theory and Number Expansions
NEW
August 30–September 2, 2016
Utrecht, The Netherlands

w http://www.math.leidenuniv.nl/~kallecccj/uu/workshopuu.html
A workshop on "Fractals, Ergodic Theory and Number Expansions" that will take place at Utrecht University from August 30 to September 2, 2016.

Confirmed invited speakers are Henk Bruin, Vilmos Komornik, Derong Kong, Wenxia Li, Joerg Thuswaldner and Reem Yassawi.

For further information please visit the website.

7th CEQURA Conference on Advances in Financial and Insurance Risk Management
NEW
September 26–27, 2016
Munich, Germany

w http://www.cequra.uni-muenchen.de/conference2016
Contact: Stefan Mittnik riskconference@cequra.lmu.de
The 7th CEQURA Conference on Advances in Financial and Insurance Risk Management, organized by the Society for Financial and Insurance Econometrics and in collaboration with the Montreal Institute of Structured Products and Derivatives and the Bayerisches Finanz Zentrum, provides a platform for presenting and discussing current developments in research and industry, and fosters the exchange between academics and practitioners from the risk management community.

Women in Statistics and Data Science Conference 2016
NEW
October 20–22, 2016
Charlotte, NC, USA

w https://ww2.amstat.org/meetings/wsds/2016/index.cfm
Early registration is open until September 6.
Join us for the 2016 Women in Statistics and Data Science Conference—the only conference in the field tailored specifically for women—October 20–22 in Charlotte, NC. WSDS will bring together academic, industry, and government professionals and students working in statistics, biostatistics, and data science.

Want more info? Listen to this half-hour podcast to get the inside scoop on how the conference came to be, what to expect this year, and plans for the future: http://community.amstat.org/biop/podcast

Register online and stay tuned for the full program, coming soon.

International Conference on Computer Systems & Mathematical Sciences
NEW
November 18–19, 2016
Ghaziabad (Delhi NCR), India

w http://www.its.edu.in/iccsms-2016
The conference aims at creating a competent forum for academicians, researchers and industry professionals from all across the world to bring together and share their experience, work, research outcomes from various parts of the world on a global forum. This conference includes all major topics of Mathematical Sciences, Statistical Sciences & Computer Sciences.

IEEE International Conference on Computing, Analytics and Security Trends
NEW
December 19–21, 2016
College of Engineering Pune, Maharashtra, India

w http://cast2016.coep.org.in/
Potential authors are invited to submit manuscripts of original unpublished research and recent developments in the topics related to the CAST-2016 conference. Accepted papers will be published in the conference proceedings, which will be submitted to IEEE Xplore Digital Library. Call for original contributions from wide area listed below but are not limited to:

- Data Analytics, Big Data and Bioinformatics
- Information Security and Networking
- Distributed,Parallel and Cloud Computing
- Natural Language Processing and Information Retrieval
- Signal Processing, Multimedia and Embedded Systems
- Green Computing and Sustainable Energy Systems

For details, please visit the conference website above or email info_CAST2016@coep.ac.in for any further query.

Other meetings and events around the world

Latent Variables 2016 Conference
October 12–14, 2016
Columbia, South Carolina, USA

w http://www.stat.sc.edu/latent-variables-2016

The Department of Statistics of the University of South Carolina, in partnership with NISS (National Institute of Statistical Sciences), is pleased to announce that it is organizing the Latent Variables 2016 Conference. This conference will be held October 12–14, 2016 at the Alumni Center on the campus of the University of South Carolina, Columbia SC.

The conference will honor Prof. **Jayaram Sethuraman**'s contribution to foundational issues in latent variables research. In addition to a plenary talk by Prof. Sethuraman, there will be plenary talks to be given by Prof. David Blei (Columbia University), Prof. Xuming He (University of Michigan) and Prof. Sonia Petrone (Universita' Boccone). The conference will also feature six pairs of concurrent sessions, each with three speakers, with each speaker giving 25-30 minute talks. The Department of Statistics has research interests in several areas related to latent variables theory and analysis. The concurrent sessions will feature research in these areas, including multiple testing, frailty models, objective Bayes analysis, factor models, diagnostic screening, model misspecification, group testing and biomarker pooling, item response theory, model-based clustering, generalized linear latent variable models, and measurement error models. There will also be poster sessions for graduate students and junior investigators, with some travel support likely for graduate students and junior investigators.

For information, registration and updates about the conference, go to http://www.stat.sc.edu/latent-variables-2016

Are you organizing a meeting? It's free, and easy, to get it listed here, and also at the online calendar, www.imstat.org/meetings. Submit the details at www.imstat.org/submit-meeting

Two-day workshop on Post-Model Selection
August 22–23, 2016
Leuven, Belgium

w http://feb.kuleuven.be/public/NDBAF45//postselection.htm

The main theme is how to deal with the effects of model selection on further inference, this in various settings, using several estimation and selection methods. Speakers include: F. Bachoc (Toulouse), A. Charkhi (KU Leuven), N.L. Hjort (Oslo), D. Kozbur (ETH Zurich), D. Rothenhäusler (ETH Zurich), U. Schneider (Vienna), J. Taylor (Stanford), X. Tian (Stanford).

Registration is open until July 8.

XIV CLAPEM
December 5–9, 2016
San José, Costa Rica

w http://www.clapem.emate.ucr.ac.cr/

Contact: Luis Barboza Chinchilla luisalberto.barboza@ucr.ac.cr

The Latin American Congress of Probability and Mathematical Statistics (CLAPEM) is the main event in probability and statistics in the region, having been held roughly every two or three years for almost 30 years. It is organized under the auspices of the Bernoulli Society for Mathematical Statistics and Probability and the SLAPEM (Latin-American Society on Probability and Mathematical Statistics). On this occasion the event is organized by the Universidad de Costa Rica, the Universidad Nacional and the Instituto Tecnológico de Costa Rica. There will be five short courses: *Stochastic analysis* by David Nualart, University of Kansas, USA; *Large Deviations and Sum Rules for Orthogonal Polynomials* by Barry Simon, Caltech, USA; *Bayesian hierarchical models* by Gavin Shaddick, University of Bath, UK; *Big data* by Jean-Michel Loubes, Université Toulouse III – Paul Sabatier, France; *Causal Inference* by Michael Hudgens, University of North Carolina, USA.

Invited speakers: Graciela Boente, Universidad de Buenos Aires, Argentina; Alexei Borodin, MIT, USA; Pietro Caputo, Università Roma Tre, Italy; Rick Durrett, Duke University, USA; Onésimo Hernández, CINVESTAV, México; Jean-Michel Loubes, Univ. Toulouse III – Paul Sabatier, France; Eric Moulines, Ecole Polytechnique, France; Susan Murphy, University of Michigan, USA; David Nualart, University of Kansas, USA; Gavin Shaddick, University of Bath, UK; Barry Simon, Caltech, USA; Michael Hudgens, University of North Carolina;

The deadline for contributed talks is September 5, 2016. The deadline for poster contributions is October 3, 2016. Registration is open.

10th Conference on Extreme Value Analysis: EVA 2017
June 26–30, 2017
Delft, The Netherlands

w www.eva2017.nl

The 10th International Conference on Extreme Value Analysis will take place at Delft University of Technology in The Netherlands. It will schedule presentations on all Probabilistic and Statistical aspects of Extreme Value Analysis and applications in Climate and Atmospheric Science, Industrial Risks, Geosciences, Hydrology, Finance, Economics and Insurance, Biosciences, Physics, and Telecommunications and Stochastic Networks. Topics of interest include:

- Univariate, multivariate, infinite dimensional extreme value theory
- Heavy tails/light tails
- Order statistics and records
- Rare events and risk analysis, and
- Spatial/spatio-temporal extremes

More details of the conference can be found at the conference website.

CEN-ISBS Vienna 2017 Joint Conference on Biometrics & Biopharmaceutical Statistics
August 28–September 1, 2017
Vienna, Austria

w www.cenisbs2017.org

Contact: Alexandra Seppi **e** cenisbs2017@aimgroup.eu

Joint conference of the International Biometric Society-Central European Network and the International Society for Biopharmaceutical Statistics. CEN-ISBS Vienna 2017 is a unique joint conference integrating multiple perspectives on current biostatistical research. Get in touch with your colleagues from academia, industry and regulators, and join us in Vienna! Call for topic-contributed sessions opens in October 2016, abstracts can be submitted from January to March 2017.

Employment Opportunities around the world

New Zealand: Wellington
Victoria University of Wellington
Professor in Actuarial Science
http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=28102914

Switzerland: Lausanne
Ecole Polytechnique Federale de Lausanne
Instructorships in Mathematics
http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=27571861

United States: Riverside, CA
University of California, Riverside
Multiple Ladder-Rank Faculty Positions in Business Analytics including Endowed Chairs (open rank)
http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=27285841

United States: Orlando, FL
University of Central Florida College of Medicine
Assistant, Associate or Full Professor of Medicine (Biostatistician)
http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=27071868

United States: Princeton, NJ
Princeton University
Lecturer Position in Operations Research and Financial Engineering
http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=28118789

International Calendar of Statistical Events

IMS meetings are highlighted in maroon with the ~ims logo, and new or updated entries have the NEW or UPDATED symbol. Please submit your meeting details and any corrections to Elyse Gustafson: erg@imstat.org

August 2016

August 1–3: Ilulissat, Greenland. **Applied Probability Symposium w** http://thiele.au.dk/events/conferences/2016/ilulissat/

August 7–10: Hamilton, ON, Canada. **Ordered Data and their Applications in Reliability and Survival Analysis: An International Conference in Honour of N. Balakrishnan for his 60th Birthday (ODRS 2016) w** http://mathandstats.mcmaster.ca/odreliabilityandsurvival/

August 8–12: University of Tennessee, Knoxville, USA. **NIMBioS Tutorial: Evolutionary Quantitative Genetics 2016 w** http://www.nimbios.org/tutorials/TT_eqg2016

August 14–19: Stanford, CA, USA. **MCQMC 2016: 12th International conference on Monte Carlo and quasi-Monte Carlo methods in scientific computing w** http://mcqmc2016.stanford.edu

August 15–19: Rønne, Bornholm, Denmark. **Workshop on Geometry and Stochastics of Nonlinear, Functional and Graph Data w** http://csgb.dk/activities/2016/geometry/

August 17–19: Maastricht, The Netherlands. **Small Area Estimation Conference 2016 w** http://www.sae2016.nl

August 18–21: Corvallis, Oregon, USA. **2016 IISA Conference on Statistics w** http://iisaconference.org/

August 21–24: Birmingham, UK. **International Society for Clinical Biostatistics 2016 Conference w** http://www.iscb2016.info/

NEW **August 22–23:** Leuven, Belgium. **Two-day workshop on Post-Model Selection w** http://feb.kuleuven.be/public/NDBAF45//postselection.htm

August 24–26: Kerman, Iran. **13th Iranian Statistical Conference w** http://isc13.uk.ac.ir/index.php?slc_lang=en&sid=1

NEW **August 30–September 2:** Utrecht, The Netherlands. **Workshop on Fractals, Ergodic Theory and Number Expansions w** http://www.math.leidenuniv.nl/~kallecccj/uu/workshopuu.html

August 31–September 2: London, UK. **Population-based Time-to-event Analyses w** http://csg.lshtm.ac.uk/pta2016/

September 2016

September 5–8: Manchester, UK. **RSS 2016 International Conference w** www.rss.org.uk/conference2016

September 6–10: Minsk, Republic of Belarus. **Computer Data Analysis and Modeling: Theoretical and Applied Stochastics (CDAM 2016) w** http://www.cdam.bsu.by

September 7–10: Almaty, Kazakhstan. **Third International Conference on Analysis and Applied Mathematics w** http://www.icaam-online.org

September 15–16: Ghent, Belgium. **Flexible Statistical Modeling past, present and future w** http://www.fsm16.ugent.be/

September 22–23: NCAR, Boulder, CO, USA. **6th International Workshop on Climate Informatics (CI 2016) w** https://www2.cisl.ucar.edu/events/workshops/climate-informatics/2016/home

NEW **September 26–27:** Munich, Germany. **7th CEQURA Conference on Advances in Financial and Insurance Risk Management w** http://www.cequra.uni-muenchen.de/conference2016

September 28–30: Washington DC. **2016 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop w** http://www.amstat.org/meetings/biopharmworkshop/2016/

~ims **September 30–October 1:** University of California, Davis, USA. **Peter Hall Memorial Conference w** http://www.stat.ucdavis.edu/hallmemorialconference/

September 30–October 2: St Louis, MO, USA. **Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI) w** http://www.math.wustl.edu/~kuffner/WHOA-PSI.html

October 2016

NEW October 12–14: Columbia, South Carolina, USA. **Latent Variables 2016 Conference w** http://www.stat.sc.edu/latent-variables-2016

October 13–14: Poznan, Poland. **eRum 2016 (European R users meeting) w** http://erum.ue.poznan.pl/

October 14–16: Niagara Falls, Canada. **International Conference on Statistical Distributions and Applications (ICOSDA 2016) w** http://people.cst.cmich.edu/lee1c/icosda2016/

October 20–22: Charlotte, NC, USA. **2016 Women in Statistics and Data Science Conference w** http://ww2.amstat.org/meetings/wsds/2016/index.cfm

NEW _ims_ October 21–23: La Jolla, California, USA. Random processes and time series: theory and applications (A conference in honor of Murray Rosenblatt) **w** http://www.math.ucsd.edu/~rosenblattconf/

November 2016

November 7–9: University of Tennessee, Knoxville, USA. **NIMBioS Workshop: Next Generation Genetic Monitoring w** http://www.nimbios.org/workshops/WS_nextgen

November 9–13: Miami, FL. **International Conference on Questionnaire Design, Development, Evaluation, and Testing w** http://www.amstat.org/meetings/qdet2/index.cfm

NEW November 18–19: Ghaziabad (Delhi NCR), India. **International Conference on Computer Systems & Mathematical Sciences w** http://www.its.edu.in/iccsms-2016

December 2016

December 4–9: Atlantic City, NJ, USA. **72nd Annual Deming Conference on Applied Statistics w** www.demingconference.com

NEW December 5–9: San José, Costa Rica. **XIV CLAPEM w** http://www.clapem.emate.ucr.ac.cr/

December 5–9: Canberra, Australia. **Australian Statistical Conference, 14th Australasian Data Mining Conference, 9th Conference on Teaching Statistics w** www.asc2016.com.au

December 15–17: Taipei, Taiwan. **Conference on Experimental Designs and Analysis (CEDA) 2016 w** http://www3.stat.sinica.edu.tw/ceda2016/

NEW December 19–21: College of Engineering Pune, Maharashtra, India. **IEEE International Conference on Computing, Analytics and Security Trends w** http://cast2016.coep.org.in/

December 19–22: Chennai, India. **Statistical Methods in Finance 2016 w** http://www.cmi.ac.in/~sourish/StatFin2016/

ims December 19–22: Shanghai, China. **10th ICSA International Conference w** http://www.math.sjtu.edu.cn/conference/2016icsa/

December 21–23: Kolkata, India. **Platinum Jubilee International Conference on Applications of Statistics w** http://stat.caluniv.in/platinum/

March 2017

ims March 8–10: Washington DC, USA. **Reproducibility of Research: Issues and Proposed Remedies w** http://www.nasonline.org/programs/sackler-colloquia/upcoming-colloquia/

June 2017

June 20–23: Riverside, CA, USA. **10th International Conference on Multiple Comparison Procedures w** http://www.mcp-conference.org/hp/2017

NEW June 26–30: Delft, The Netherlands. **10th Conference on Extreme Value Analysis: EVA 2017 w** www.eva2017.nl

International Calendar *continued*

June 2017 *continued*

ims June 28–July 1: Nanning, Guangxi Province, China. **2017 IMS-China International Conference on Statistics and Probability w** TBC

July 2017

July 2–7: Groningen, The Netherlands. **IWSM 2017 w** http://iwsm2017.webhosting.rug.nl/

July 9–13: Vigo, Spain. **38th Annual Conference of the International Society for Clinical Biostatistics w** TBC

July 16–21: Marrakech, Morocco. **61st ISI World Statistics Congress 2017 w** http://www.isi2017.org/

ims July 24–28: Moscow, Russia. **39th Conference on Stochastic Processes and their Applications (SPA) w** TBC

ims July 29 – August 3: Baltimore, USA. **IMS Annual Meeting at JSM 2017 w** http://amstat.org/meetings/jsm/

Come to JSM 2017: this is Baltimore Inner Harbor at night (photo by Mitch Lebovic)

August 2017

NEW August 28–September 1: Vienna, Austria. **CEN-ISBS Vienna 2017 Joint Conference on Biometrics & Biopharmaceutical Statistics w** www.cenisbs2017.org

July 2018

ims July 2–6: Vilnius, Lithuania. **Joint 2018 IMS Annual Meeting and 12th International Vilnius Conference on Probability Theory & Mathematical Statistics w** TBC

July 9–13: Edinburgh, UK. **ISBA 2018 World Meeting w** TBC

ims July 28 – August 2: Vancouver, Canada. **JSM 2018 w** http://amstat.org/meetings/jsm/

July 2019

ims July 27–August 1: Denver, CO, USA. **IMS Annual Meeting at JSM 2019 w** http://amstat.org/meetings/jsm/

August 2020

ims August 1–6: Philadelphia, PA, USA. **JSM 2020 w** http://amstat.org/meetings/jsm/

August 2021

ims August 7–12: Seattle, WA, USA. **IMS Annual Meeting at JSM 2021 w** http://amstat.org/meetings/jsm/

August 2022

ims August 6–11: Washington DC, USA. **JSM 2022 w** http://amstat.org/meetings/jsm/

Are we missing something? If you know of any statistics or probability meetings which aren't listed here, please let us know.
You can email the details to Elyse Gustafson at **erg@imstat.org**, or you can submit the details yourself at **http://www.imstat.org/submit-meeting.html**
We'll list them here in the Bulletin, and on the IMS website too, at **www.imstat.org/meetings**

Membership and Subscription Information

Journals

The scientific journals of the Institute of Mathematical Statistics are *The Annals of Statistics*, *The Annals of Probability, The Annals of Applied Statistics*, *The Annals of Applied Probability*, and *Statistical Science*. The *IMS Bulletin* is the news organ of the Institute.

Individual Memberships

Each individual member receives the *IMS Bulletin* (print and/or electronic) and may elect to receive one or more of the five scientific journals. Members pay annual dues of $115. An additional $74 is added to the dues of members for each scientific journal selected ($49 for *Stat Sci*). **Reduced membership** dues are available to full-time students, new graduates, permanent residents of countries designated by the IMS Council, and retired members.

Individual and General Subscriptions

Subscriptions are available on a calendar-year basis. **Individual subscriptions** are for the personal use of the subscriber and must be in the name of, paid directly by, and mailed to an individual. Individual subscriptions for 2016 are available to *The Annals of Applied Probability* ($199), *The Annals of Applied Statistics* ($199), *The Annals of Probability* ($199), *The Annals of Statistics* ($199), *Statistical Science* ($174), and *IMS Bulletin* ($125). **General subscriptions** are for libraries, institutions, and any multiple-readership use. Institutional subscriptions for 2016 are available to *The Annals of Applied Probability* ($475), *The Annals of Applied Statistics* ($475), *The Annals of Probability* ($475), *The Annals of Statistics* ($475), *Statistical Science* ($270), and *IMS Bulletin* ($118). Airmail rates for delivery outside North America are $135 per title.

IMS Bulletin

The *IMS Bulletin* publishes articles and news of interest to IMS members and to statisticians and probabilists in general, as well as details of IMS meetings and an international calendar of statistical events. Views and opinions in editorials and articles are not to be understood as official expressions of the Institute's policy unless so stated; publication does not necessarily imply endorsement in any way of the opinions expressed therein, and the *IMS Bulletin* and its publisher do not accept any responsibility for them. The *IMS Bulletin* is copyrighted and authors of individual articles may be asked to sign a copyright transfer to the IMS before publication.

Information for Advertisers

General information: The *IMS Bulletin* and webpages are the official news organs of the Institute of Mathematical Statistics. The *IMS Bulletin*, established in 1972, is published 8 times per year. Print circulation is around 2,000 paper copies, and it is also free online in PDF format at http://bulletin.imstat.org, posted online about two weeks before mailout (average downloads over 8,000). Subscription to the *IMS Bulletin* costs $125. To subscribe, call 877-557-4674 (US toll-free) or +1 216 295 2340 (international), or email staff@imstat.org. The IMS website, http://imstat.org, established in 1996, receives over 30,000 visits per month. Public access is free.

Advertising job vacancies

A single 60-day online job posting costs just $285.00. We will also include the basic information about your job ad (position title, location, company name, job function and a link to the full ad) in the *IMS Bulletin* at no extra charge. See http://jobs.imstat.org

Advertising meetings, workshops and conferences

Meeting announcements in the *Bulletin* and on the IMS website at http://imstat.org/meetings are free. Send them to Elyse Gustafson; see http://www.imstat.org/program/prog_announce.htm

Rates and requirements for display advertising

Display advertising allows for placement of camera-ready ads for journals, books, software, etc. A camera-ready ad should be sent as a grayscale PDF/EPS with all fonts embedded. Email your advert to Audrey Weiss, IMS Advertising Coordinator admin@imstat.org or see http://bulletin.imstat.org/advertise

	Dimensions: width x height	Rate
1/3 page	4.9" wide x 4" high (125 x 102 mm)	$250
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Full page (to edge, including 1/8" bleed)	8.75" wide x 11.25" high (222 mm x 286 mm)	$420
Full page (within usual *Bulletin* margins)	7.5" wide x 9.42" high (190 mm x 239 mm)	$420

Deadlines and Mail Dates for *IMS Bulletin*

Issue		Deadline	Online by	Mailed
1:	January/February	**December 1**	December 15	January 1
2:	March	**February 1**	February 15	March 1
3:	April/May	**March 15**	April 1	April 15
4:	June/July	**May 1**	May 15	June 1
5:	August	**July 1**	July 15	August 1
6:	September	**August 15**	September 1	September 15
7:	Oct/Nov	**September 15**	October 1	October 15
8:	December	**November 1**	November 15	December 1

The **purpose** of the **Institute** is to foster the **development** and **dissemination** of the **theory** and **applications** of **statistics** and **probability**

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