Volume 51 • Issue 5

The members' magazine of the Institute of Mathematical Statistics

IMS Bulletin

August 2022

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Read it online: imstat.org/news

IMS London: Mind the Stat!

*Scientific committee chairs **Thomas Mikosch** (University of Copenhagen, Denmark, on the left in the photo) and **Qiwei Yao** (London School of Economics, LSE), holding one of the "Mind The Stat" conference tote bags*

IMS 2022 Annual Meeting organizers Qiwei Yao and Thomas Mikosch were delighted to welcome more than 520 participants—including over 100 students—to the IMS Annual Meeting in London at the end of June (https://www.imsannualmeeting-london2022.com). For many attendees it was their first in-person conference in three years, and there was a lively buzz of conversation over lunches, and cups of tea and coffee, as friendships and collaborations were formed or renewed.

In a packed four-day program, there were 60 invited sessions, shared between a range of probability and statistics topics, 17 topic-contributed sessions, and 24 contributed talks sessions. Keynote lectures were delivered by **Martin Hairer** (two Wald lectures), **Heping Zhang** (Neyman lecture), **Hans-Georg Müller** (Rietz lecture), **Michael I. Jordan** (Wahba lecture; see page 5 for more about Grace Wahba), **Russell Lyons** (Schramm Lecture). There were four Medallion lectures, by **Rodrigo Bañuelos**, **Rina Foygel Barber**, **Vlada Limic** and **Roman Vershynin**. The opening reception was hosted by LSE, and a fine banquet on the penultimate evening featured an entertaining after-dinner speech by **Bernard Silverman** (see page 8). The winners of the Lawrence Brown PhD Student Award (**Rungang Han**, **Rong Ma**, and **Chan Park**) gave their talks in a special session. **Krzysztof Burdzy** gave his IMS Presidential Address, as well as presenting the 2022 Fellows, the 2020 and 2021 Carver medals (to **Lynne Billard** and **Tati Howell**, respectively), the Peter Hall Award (to **Weijie Su**; see page 2), and the travel awards for graduate students and new researchers.

You can find photos from the meeting on pages 5–9.

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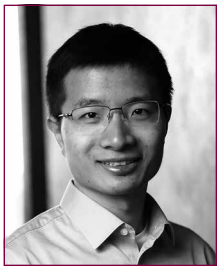
IMS Members' News

Weijie Su wins Peter Gavin Hall IMS Early Career Prize

The Peter Gavin Hall Early Career Prize recognizes early-career research accomplishments and research promise in statistics, broadly construed. The 2022 recipient of the Peter Gavin Hall IMS Early Career Prize is **Weijie Su** of the University of Pennsylvania.



Dr. Su receives the award "for fundamental contributions to the development of privacy-preserving data analysis methodologies; for groundbreaking theoretical advancements in understanding gradient-based optimization methods; for outstanding contributions to high-dimensional statistics, including false discovery rate control and limits in sparsity estimation; for wide-ranging contributions to the theoretical foundation of deep learning."

Dr. Su is (from July 2022) an Associate Professor in the Wharton Statistics and Data Science Department and in the Department of Computer and Information Science, at the University of Pennsylvania. He obtained his PhD from Stanford University and his bachelor's degree from Peking University. His research interests include statistical machine learning, deep learning theory, high-dimensional statistics, privacy-preserving data analysis, optimization, and large-scale multiple testing.

Weijie Su recently received the inaugural **SIAM Early Career Prize in Data Science**, which recognizes an outstanding early-career researcher in the mathematics of data science. Weijie will give a talk at the 2022 SIAM conference on Mathematics of Data Science (MDS22: September 26–30, 2022, in San Diego). His SIAM citation is for "outstanding contributions to the theoretical and computational foundations of data science."

Chernoff Excellence in Statistics Award

The Chernoff Excellence in Statistics Award from the New England Statistical Society has been presented to **Nitis Mukhopadhyay**, "who, in the tradition of Herman Chernoff's work, has made exceptional contributions to the theory, methodology, and novel applications of statistics and data science."

The award was presented at the 35th New England Statistics Symposium hosted by the University of Connecticut, May 25, 2022. Professor Mukhopadhyay delivered the Keynote Chernoff Lecture, titled, "A Slow Dance from Andrey Markov's Inequality to Herman Chernoff's Inequality and Bound: My Memories in a Rear View Mirror."

For more about Mukhopadhyay and the award, visit http://merlot.stat.uconn.edu/~nitis/ and https://nestat.org/hcaward/

As you may recall, the New England Statistical Society [*see above*] is one of the societies IMS has partnered with to offer discounted joining fees when renewing your IMS membership: the list is at **https://imstat.org/individual-membership/**

American Academy of Arts and Sciences

Among the American Academy of Arts and Sciences' 260 newly elected members, selected to recognize their accomplishments and leadership in academia, the arts, industry, public policy, and research, is **Alice Guionnet**, who is made an International Honorary Member. See https://www.amacad.org/news/2022-member-announcement

IMS Members' News

ASA Fellows

The American Statistical Association (ASA) is bestowing its prestigious distinction of Fellow, in 2022, on 48 members for their professional contributions, leadership, and commitment to the field of statistical science.

Among the 2022 ASA Fellows are the following 16 IMS members: **Genevera I. Allen**, Rice University; **Kun Chen**, University of Connecticut; **Radu V. Craiu**, University of Toronto; **Yang Feng**, New York University; **Christopher M. Hans**, The Ohio State University; **Haiyan Huang**, UC Berkeley; **Fan Li**, Duke University; **Tucker S. McElroy**, US Census Bureau; **Knashawn H. Morales**, University of Pennsylvania; **Abel Rodriguez**, University of Washington; **Claude Messan Setodji**, RAND Corporation; **Ali Shojaie**, University of Washington; **Peng Wei**, University of Texas MD Anderson Cancer Center; **Michael C. Wu**, Fred Hutchinson Cancer Research Center; **Eric Poe Xing**, Carnegie Mellon University, and the Mohamed bin Zayed University of Artificial Intelligence; and **Wenxuan Zhong**, University of Georgia.

The complete list is at https://www.amstat.org/docs/default-source/amstat-documents/pdfs/fellows/Fellows2022.pdf.

Emery Brown working to develop new center for anesthesiology research

IMS Fellow **Emery Brown**—Edward Hood Taplin Professor of Medical Engineering and computational neuroscience at Massachusetts Institute of Technology, MIT professor of health sciences and technology, investigator with The Picower Institute for Learning and Memory at MIT, and Warren M. Zapol Professor of Anaesthesia at Harvard Medical School and Massachusetts General Hospital (MGH)—is stepping down as co-director of the Harvard–MIT Program in Health Sciences and Technology to begin work on a new joint center between MIT and MGH. The goal of the center is to improve anesthesia and intensive care unit management. Those working there will also study related problems, such as treating depression, insomnia, and epilepsy, as well as enhancing coma recovery.

Photo: David Orenstein/MIT

Read more about Dr. Brown and the new center at https://news.mit.edu/2022/professor-emery-brown-big-plans-anesthesiology-0208

IMS election results

The President-Elect is **Michael Kosorok**, [*pictured right*] and the five new IMS Council members are: **Siva Athreya**, **Rina Foygel Barber**, **Judith Rousseau**, **Ryan Tibshirani**, and **Harrison Zhou**. Thanks to the outgoing Executive Committee and Council members—and to everyone who voted in the 2022 elections!

= access published papers online

IMS Journals and Publications

Annals of Statistics: Enno Mammen, Lan Wang
https://imstat.org/aos
https://projecteuclid.org/aos

Annals of Applied Statistics: Ji Zhu
https://imstat.org/aoas
https://projecteuclid.org/aoas

Annals of Probability: Christophe Garban, Alice Guionnet
https://imstat.org/aop
https://projecteuclid.org/aop

Annals of Applied Probability: Kavita Ramanan, Qiman Shao: https://imstat.org/aap
https://projecteuclid.org/aoap

Statistical Science: Sonia Petrone
https://imstat.org/sts
https://projecteuclid.org/ss

IMS Collections
https://projecteuclid.org/imsc

IMS Monographs and *IMS Textbooks:* Mark Handcock
https://www.imstat.org/journals-and-publications/ims-monographs/

IMS Co-sponsored Journals and Publications

Electronic Journal of Statistics: Grace Yi & Gang Li
https://imstat.org/ejs
https://projecteuclid.org/ejs

Electronic Journal of Probability: Bénédicte Haas
https://projecteuclid.org/euclid.ejp

Electronic Communications in Probability: Siva Athreya
https://projecteuclid.org/euclid.ecp

Journal of Computational and Graphical Statistics: Galin Jones, Faming Liang https://www.amstat.org/ASA/Publications/Journals.aspx
log into members' area at imstat.org

Probability Surveys: Mikhail Lifshits
https://imstat.org/ps
https://www.i-journals.org/ps/

Statistics Surveys: Marloes Maathuis
https://imstat.org/ss
https://projecteuclid.org/euclid.ssu

IMS-Supported Journals

ALEA: Latin American Journal of Probability and Statistics: Daniel Remenik
http://alea.impa.br/english

Annales de l'Institut Henri Poincaré (B): Giambattista Giacomin, Yueyun Hu
https://imstat.org/aihp
https://projecteuclid.org/aihp

Bayesian Analysis: Mark Steel
https://projecteuclid.org/euclid.ba

Bernoulli: Davy Paindaveine
https://www.bernoulli-society.org/
https://projecteuclid.org/bj

Brazilian Journal of Probability and Statistics: Mário de Castro
https://imstat.org/bjps
https://projecteuclid.org/bjps

IMS-Affiliated Journals

Observational Studies: Nandita Mitra
https://obs.pennpress.org/

Probability and Mathematical Statistics: Krzysztof Bogdan, Krzysztof Dębicki
http://www.math.uni.wroc.pl/~pms/

Stochastic Systems: Shane Henderson
https://pubsonline.informs.org/journal/stsy

Rousseeuw Prize winners announced

First Rousseeuw Prize awarded to Causal Inference researchers James Robins and his collaborators

The King Baudouin Foundation has chosen the recipients of the 2022 biennial Rousseeuw Prize for Statistics. This new scientific prize of 1 million dollars was created by Peter Rousseeuw, professor of statistics at KU Leuven, Belgium. The goal of the prize is to reward excellent statistical research with an important impact.

Half of the prize amount will go to IMS member **James Robins** (Harvard University), and the other half jointly to **Miguel Hernán** (Harvard University), **Thomas Richardson** (University of Washington), **Andrea Rotnitzky** (Universidad Torcuato di Tella, Argentina) and **Eric Tchetgen Tchetgen** (University of Pennsylvania), **for their groundbreaking methodological contributions to Causal Inference with applications in Medicine and Public Health**. The latter four laureates were either trained or deeply influenced by Robins, and remain his main collaborators to this day.

The work honored by this award has fundamentally transformed the way in which statisticians, epidemiologists, and other scientists infer the effects of exposures and treatments that vary over time using data from observational studies. As opposed to clinical trials, such studies contrast groups of people who received different treatments, without an experimenter's control over who receives which treatment. This absence of experimentation complicates the causal interpretation of observational study results. For example, sicker people may be more likely to initiate treatment, thereby making a beneficial treatment appear harmful. However, it is often the case that experimentation is not feasible because of ethical reasons, e.g., when studying potentially toxic agents, or because of practical reasons, e.g., study cost or duration. Therefore, often one must rely on observational data to investigate the effects of certain treatments or exposures.

Specifically in Medicine and Public Health, the work of the laureates has drastically improved the methods for inferring the causal effects of medical treatments and interventions, thereby being of great benefit to individual patients and society. For instance, it has provided us with new insights and statistical methods for addressing central epidemiological questions, such as how harmful is a long-term radiation exposure in a nuclear facility, or what are the optimal strategies for treating persons with HIV.

These developments greatly improved on prior analytic methods. In 1986, James Robins showed that the then state-of-the-art algorithms used to assess the causal effects on mortality of treatments or exposures that change over time could erroneously find a treatment effect even when no effect existed. This is because these methods ignored a feedback complication unique to studies of time-varying treatments. In persons with HIV, for instance, physicians initiate antiviral treatment in those whose immunity has been compromised by the virus. Therefore, patients who initiate antiretroviral treatment are sicker than patients who do not initiate treatment. However, the treatment itself improves a patient's immune response. This results in a complex feedback system, where immunity affects the treatment the patient receives, which in turn affects future immunity and survival, and thus future treatment. Prior to the work of Robins, this subtlety went unrecognized in the scientific literature. Robins solved this methodological problem in a series of ingenious papers, thereby laying the foundations for a long list of methodological innovations by the laureates that helped launch a revolution in the field of Statistics.

The laureates' novel methods have helped to resolve several high-profile disagreements between the results of earlier observational studies and subsequent clinical trials. Such disagreements have long been attributed to the absence of experimentation in the observational studies.

However, in studies of the effect of post-menopausal hormone therapy on coronary heart disease and of statin therapy on cancer, these disagreements largely disappeared after re-analysis using the laureates' methods, indicating that, in these cases, the prior use of older inappropriate statistical methods had likely been responsible. More recently, the new methods have been applied, prior to the availability of clinical trial evidence, to important observational studies of the timing of initiation of antiretroviral treatment in people with HIV, of the screening schedules for colorectal cancer, and of the benefits of anti-inflammatory therapy for Covid-19. In all three cases, the findings agreed with the results of later clinical trials.

The international jury appointed by the King Baudouin Foundation selected the winners from the nominations received after a widely advertised call earlier this year. The jury consisted of its chair David Hand (Imperial College), Lutgarde Buydens (Radboud University Nijmegen), Probal Chaudhuri (Indian Statistical Institute), Dianne Cook (Monash University), Roger Koenker (University of Illinois), Yanyuan Ma (Penn State), David Scott (Rice University), David Steinberg (Tel Aviv University), Jane-Ling Wang (UC Davis), and James Zidek (University of British Columbia). For more information on the prize see www.rousseeuwprize.org .

The prize will be awarded in a ceremony taking place at KU Leuven, Belgium on Wednesday October 12, 2022.

Two honors for Grace Wahba

Honorary Doctorate awarded to Grace Wahba by The Ohio State University

Grace Wahba, Professor Emerita at the University of Wisconsin–Madison, was awarded the honorary degree of Doctor of Science by The Ohio State University at its Spring Commencement on May 8. The degree recognizes the monumental contributions she has made to Statistics and Data Science during and before her 51 years on the faculty at Wisconsin, with special mention of her contributions in the area of smoothing splines, generalized cross validation, and her pivotal role in the development of statistical learning.

Photo: Logan Wallace/The Ohio State University

Grace Wahba receiving the diploma from the Ohio State University President Kristina Johnson

During the ceremony, Grace exhorted the more than 9,000 graduates in attendance to do their best. She said, "If it is worth doing at all, it is worth doing your best. Then you will have no regrets, win or lose." She received thunderous applause from the crowd of 70,000 in attendance at Ohio Stadium.

Grace Wahba receives copy of her own medal in special session

As we have previously reported, the IMS created a new award last year, the IMS Grace Wahba Award and Lecture. This is an annual award honoring Grace Wahba's contributions to statistics and science, "including pioneering work in mathematical statistics, machine learning, and optimization; broad and career-long interdisciplinary collaborations that have had a significant impact in the fields of epidemiology, bioinformatics, and climate sciences; as well as outstanding mentoring." In future years the lecture will be given at the Joint Statistical Meetings, but as this was the first year of the award, the Wahba lecture was given at the IMS Annual Meeting in London [*see cover article*]. It was presented this year by Michael I. Jordan, "On the Blending of Statistical Machine Learning and Microeconomics." In a special invited session on Wahba's contributions, Grace was presented with her own copy of the medal that had been made in her image.

[Pictured right] Bernard Silverman presented Grace Wahba with a copy of the medal created in her honor; [below] a close-up of the first copy of the medal to be struck at the mint.

Bernoulli Society establishes new Cox Lecture at Bernoulli/IMS World Congresses

Victor Panaretos, President-Elect of the Bernoulli Society, announced the creation of a new named lecture in honor of Sir David Cox in the May 2022 *Bernoulli News*:

David Cox had a profound influence on our discipline and its applications. Not only through his contributions that will leave a lasting impact, but also by his remarkable record of service, his luminary presence at scientific events, and particularly his mentorship of young scientists. [*He was also a former President of the IMS and the Bernoulli Society.*]

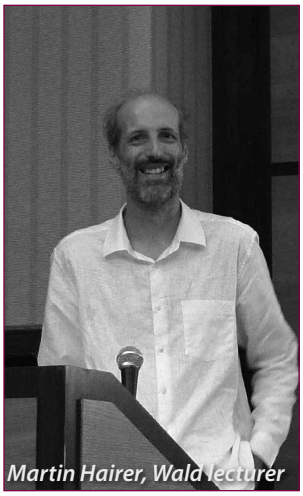
To honour and celebrate David's manifold legacy, the Bernoulli Society is pleased to announce the establishment of a Cox Lecture to be delivered every four years at the Bernoulli/IMS World Congress of Probability and Statistics.

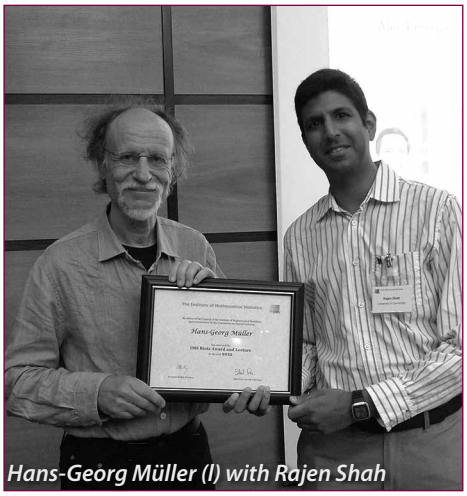
The Lecture will be in Statistics, and will be one of six special named lectures organised by the Bernoulli Society, the others being the Bernoulli Lecture (applications of Statistics or Probability), the Kolmogorov Lecture (Probability), the Laplace Lecture (Statistics), the Lévy Lecture (Stochastic Processes), and the Tukey Lecture (Statistics).

We are grateful to the Cox family for their endorsement of this initiative, and look forward to the inaugural Cox Lecture at the 2024 World Congress in Bochum.

The Bernoulli–IMS 11th World Congress in Probability and Statistics will take place August 12–16, 2024, at Ruhr-University Bochum, in Germany.

IMS Annual Meeting in photos


Martin Hairer, Wald lecturer

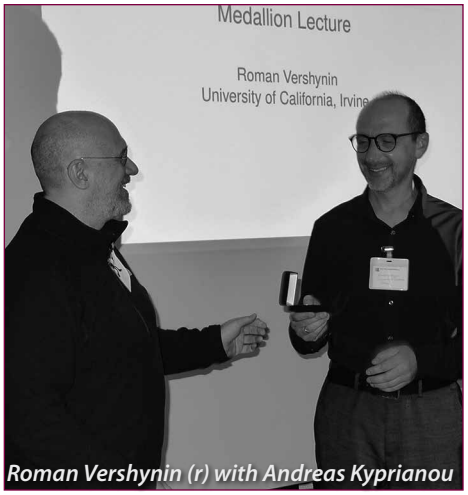

Hans-Georg Müller (l) with Rajen Shah


Neyman lecturer Heping Zhang (l) with Piotr Fryzlewicz

A rapt audience at the opening remarks by Thomas Mikosch


Rodrigo Bañuelos (r) with Tialen Hsing

Rina Foygel Barber (l) with Yingying Fan



Roman Vershynin (r) with Andreas Kyprianou

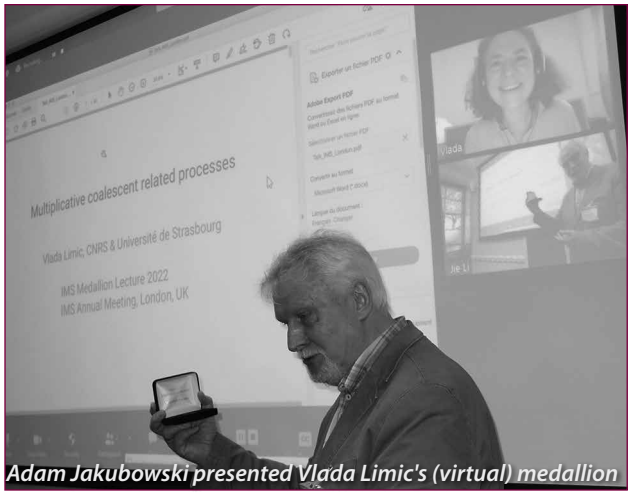

Twelve of the 2022 IMS Fellows, who were presented with their plaques at the meeting


Carver medalists Lynne Billard & Tati Howell


New IMS President Peter Bühlmann (r) takes the gavel


Welcome reception hosted by London School of Economics


Four of this year's travel award winners



Adam Jakubowski presented Vlada Limic's (virtual) medallion

Erik Bates, who is now an NSF postdoc and Van Vleck Visiting Assistant Professor at the University of Wisconsin–Madison, was one of the winners of the **2020 New Researcher Travel Award**. He was (finally) able to make use of his award to fund his travel to the London meeting. He shared some impressions: *"The venue and schedule were well organized, and the hybrid formats worked fairly well when used. The 'helpers' were indeed very helpful, and their preparation was evident. A personal highlight from the meeting was Martin Hairer's pair of Wald lectures, which I found to be exceptionally vivid and intriguing. Beyond meeting walls, the environs of London added ample opportunity for dining with other participants and partaking in the city's many cultural attractions."*

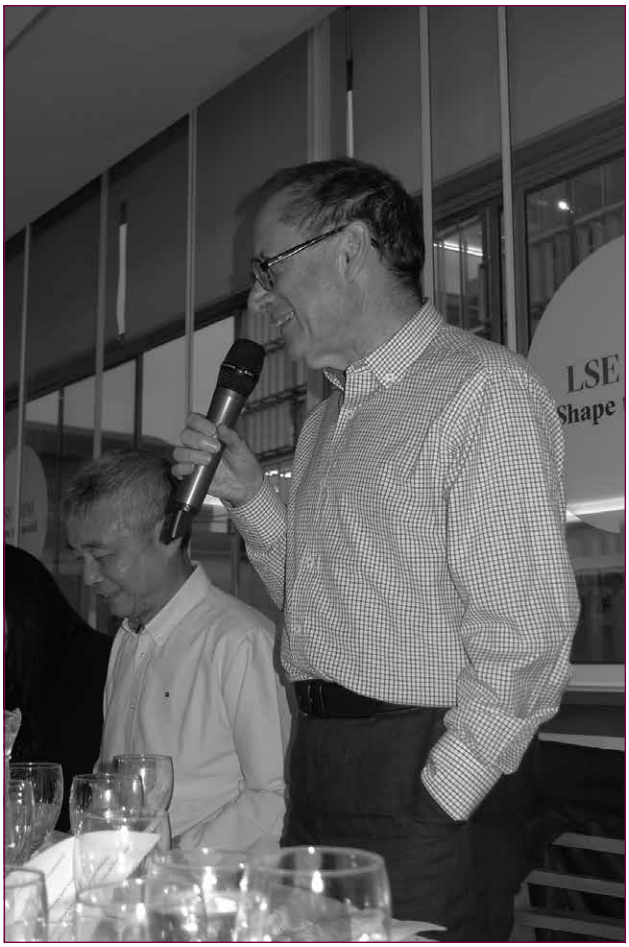
Bernard Silverman: After-dinner speaker

Bernard Silverman outlined his long involvement with IMS in his speech after the delicious banquet hosted by LSE at the London meeting.

I'm very honoured to be invited here. It's fantastic that the IMS meeting is in London, and I really hope that people are enjoying their time here.

My own involvement with IMS goes back nearly 50 years, so I thought I'd reflect a bit on that. Early in my career I can remember meeting some of the founders of our field. For instance, I went to a conference in Chapel Hill in honour of Hoeffding, and I was introduced to Neyman on his 85th birthday (which was in 1979). When I was a student in Cambridge in the mid 70s, we had a visit from David Blackwell and I was deputed to take him and his daughter punting. About the same time we had a visit from Grace Wahba, who has been a role model and a friend, if I may say, ever since. And while I'm thinking about people whose work has been hugely influential in our area, I should mention David Cox, who sadly died recently, and C.R. Rao who is still alive at the age of 101 (I've never met Rao, but I did meet Kolmogorov at a strange dinner in Moscow in the mid 80s). I often used to meet David Cox in the supermarket in Oxford and on the train to meetings in London; the last time I saw him was in March 2020, when we had a long talk in the street and then he apologised and said that he had to go because he would be late for work in the office; he was 95.

Apart from the people, it's also interesting to recall what I used to do when I was a research student in the mid 70s. I used to spend quite a bit of time in the library simply reading the journals. And by that, I mean when a new issue of *Annals of Statistics* or *JRSS-B* came along, I would actually read every paper in it. And a lot of back issues of the old *Annals of Mathematical Statistics*. The RSS would have a Read Paper every month and a whole group of us would travel to London, regardless of the topic, and listen to (and often take part in) the discussion. David Cox, then at Imperial, would almost always stand up and make a pithy and apposite point. The RSS read papers were a sort of running survey of all the leading areas of research and hence it was an excellent way of keeping up and building a community of friends and colleagues.



Maybe it's inevitable, as our field has grown and developed, that it's unlikely a student could have the privilege of such a wide view nowadays. Electronic journals are wonderful, but there's nothing like an old-fashioned paper volume to browse through (though my browsing days finished well before electronic publishing became the standard!). Nor would it be so easy to get to know so many of the pivotal people because there are so many of them and they are so disparate. Societies like IMS and RSS were always important venues for interaction and publication, but they do far more than that, because they are actually, in my view, the glue that holds scientific activity together.

In the 70s, I wrote a paper called, "Density Estimation: are theoretical results useful in practice?" My friend Professor Paul Deheuvels from Paris said, "Yes: they are useful for writing papers." At the time, statistics was only considered a useful subject in certain scientific areas. You could do biology without knowing any maths at all. And

Continued from **page 8**

of course the famous physicist Ernest Rutherford is reputed to have said, "If your experiment needs statistics, you ought to have done a better experiment." And as for what was actually possible for statistics, my Master's course included learning how to use a hand calculator to do analysis of variance—scientific programmable calculators didn't really exist at the time. [*Editor's note: Bernard slightly later co-designed the first programmable pocket calculator.*] Now, we have the whole fields of machine learning, data science, genomics, and so on. Both mathematical statistics and probability are fundamental in these areas.

So here we are, working in an ever-expanding field (or fields), and no longer can anyone seriously think that our subject is only useful "for writing papers". So, I wanted to reflect on what role the IMS plays.

The IMS was created in order to create a "home" for mathematical statistics. IMS has a distinctive voice, which I would see as supporting the fundamental understanding of probability and statistics—for their own sake, but also as underpinning so many other disciplines and activities. Data science and machine learning can too easily degenerate into a mess of ad hoc tools if we don't get to grips with actually understanding what is likely to work and why. No amount of computer simulation can beat probability results that are actually established mathematically. We should be proud and confident about all the hard and rigorous thinking that goes into our discipline, and the IMS—its people, its journals, its meetings, its whole philosophy—represents that. Many people think we don't need learned societies at all, but long experience shows that societies define and support their disciplines and hence, even those who don't realise it are benefiting from them.

Think about a learned society as something that puts a wall around a discipline to protect and define it, but it needs to be a flexible wall with lots of space for air and ideas to flow in and out!

There's been tension between probability and statistics within IMS for decades. This is unsurprising, because as disciplines become wider, the ability to understand any more your own part increases. But we should really resist that. No longer can anyone individually get something from *all* the journals and *all* the talks—but the organisation as a whole does have that corporate understanding, and we should all support it.

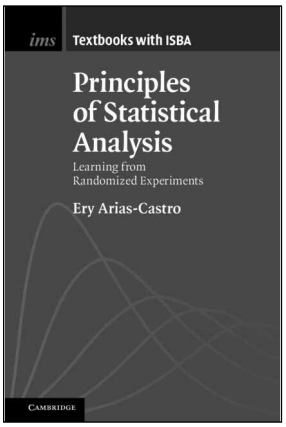
As I said, the IMS is the glue that holds all this together. By coming to a broad-ranging meeting like this one, you've all committed yourself to that broad view. Thank you. Keep it up.

In closing, I'd like to propose a toast: *to probability and statistics, and to the IMS!*

NEW BOOK

The Institute of Mathematical Statistics presents

IMS TEXTBOOKS



Principles of Statistical Analysis: Learning from Randomized Experiments

Ery Arias-Castro, University of California, San Diego

This compact course is written for the mathematically literate reader who wants to learn to analyze data in a principled fashion. The language of mathematics enables clear exposition that can go quite deep, quite quickly, and naturally supports an axiomatic and inductive approach to data analysis. Starting with a good grounding in probability, the reader moves to statistical inference via topics of great practical importance – simulation and sampling, as well as experimental design and data collection – that are typically displaced from introductory accounts. The core of the book then covers both standard methods and such advanced topics as multiple testing, meta-analysis, and causal inference.

"With the rapid development of data-driven decision making, statistical methods have become indispensable in countless domains of science, engineering, and management science, to name a few. Ery Arias-Castro's excellent text gives a self-contained and remarkably broad exposition of the current diversity of concepts and methods developed to tackle the challenges of data science. Simply put, everyone serious about understanding the theory behind data science should be exposed to the topics covered in this book."
Philippe Rigollet, Massachusetts Institute of Technology

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Paperback $39.99

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Cambridge University Press, with the Institute of Mathematical Statistics, established the *IMS Monographs* and *IMS Textbooks* series of high-quality books. The series editors are Nancy Reid (Coordinating Editor), Ramon van Handel (Probability), Arnaud Doucet (Algorithms) and John Aston (Statistics).

Two pieces of advice for Graduate Students

Will Eagan was one of the winners of the 2020 IMS Hannan Graduate Student Travel Award (he graduated from Purdue with his PhD in December 2020, and is now a Principal Biostatistician at Regeneron Pharmaceuticals). He wrote to share two pieces of advice he was given as a grad student:

Upon matriculating into the graduate program in statistics at Purdue University, I was very fortunate to be mentored by Rebecca Doerge, who was my department head. (Although I have since graduated, and she is now a dean at Carnegie Mellon University, I still view her as a mentor.) When I first started graduate school, she offered me two pieces of advice that I took to heart:

1) *You should join statistical organizations (and IMS student membership is free).*
2) *When it comes to opportunities for graduate students, if you can be a "complete applicant" and are interested, you should apply.*

So, without much thought at the time, I joined IMS. I quickly enjoyed the journal access. I was proud every time I saw a publication by a fellow Boilermaker (someone from Purdue). As someone who enjoys seeing the myriad applications driving methodology, my favorite journal is the *Annals of Applied Statistics*. One article is prominently discussed in my dissertation.

The question of why you should join IMS is demonstrated through journals, conferences, and awards. IMS offers a chance to connect with the larger statistics community and establish a professional network. The benefits are considerable for students and early-career statisticians. I am always encouraged when more senior—and even, highly distinguished—statisticians ask about your research, agree to be part of your conference session, or offer useful insights. The structure of the organization helps you find role models beyond your institution and exemplifies what it means to build an international reputation.

Professor Doerge's second piece of advice took longer for me to digest. Both within and outside of graduate school, there are numerous opportunities for graduate students to be recognized and receive funding. It may take some effort to seek these out. In some cases, these opportunities may be low-hanging fruit. The funding could be a modest amount to defray travel costs to a conference or a substantial fellowship to help you dedicate yourself fully to your graduate studies. The worst-case scenario is you simply do not win the award or fellowship. Many graduate students feel if they didn't win the award, it was a waste of time applying. I disagree. The process of writing about your research, evaluating the strengths and weaknesses of your resume/CV, and trying to convince an organization to invest in you is preparation for new opportunities down the road.

The key is recognizing how to be a *"complete applicant."* That term means that the award is appropriate for your career stage and research interests, and that your background is sufficient. Spend time going through each of the requirements to ensure that you can satisfy each one. If in doubt, try to learn more. Past winners are great sources of information. Faculty members can provide insight. It is even possible with enough investigation and self-awareness to use a well-crafted "feeler" e-mail to the committee chair.

IMS does a fantastic job creating such an opportunity for graduate students with the Hannan Graduate Student Travel Award. If you don't apply, you cannot win. In my last year of graduate school, I saw IMS was again offering the Hannan Graduate Student Travel Award. At first, I questioned if I could be a *"complete applicant."* Fortunately, I inquired about applying with one of my classmates who had won in a previous year. He enthusiastically suggested I try. I double-checked with one my professors and he agreed I should try. Even better, he offered to write a letter of recommendation for me! I worked hard on my application package and even had a chance to update it when the opportunity arose. To my delight, I was one of the awardees in 2021. I used the travel money to pay for the conference registration for the Joint Statistical Meetings. Unfortunately, COVID-19 had forced another conference to go virtual so there was no physical travel.

Winning accolades such as the Hannan Graduate Student Travel Award was about more than the money, or adding a new line to my CV. It was about the encouragement. It's motivating, working on a presentation knowing that an organization like IMS is willing to invest in you to present at a sponsored or co-sponsored conference.

My advice for junior members of IMS: invest time learning about the opportunities the organization has to offer. It may even result in finding opportunities for friends and colleagues. Ask for insight from those who are more senior. And, for those who *are* more senior, try to find ways to encourage to junior statisticians to become involved. Seek their help reviewing journal articles, ask for their thoughts about the future of statistics (and data science), nudge them to organize sessions at conferences, and remember to tell them that the IMS offers free student membership!

Grad students and new researchers can apply now for next year's Hannan and New Researcher Travel Awards: see https://imstat.org/ims-awards/

Theoretically, we could be more practical

Radu V. Craiu writes another "Radu's Ride":

After more than twenty years of looking at the faces of puzzled students, I sometimes wonder where have these (many!) undergraduates ended up working, and whether they're still confused about statistics. This is a more serious thought than you'd think, because we wrap our students in the heavy mantle of hopeful anticipation and send them into the world and… well, are they delivering? Clearly, the society has data coming out of its metaphorical ears, and there is a high expectation for the data science "people" to do something about it. So, who are these people? And where do they work? In the topsy-turvy data science ecosystem, the tables between academia and industry have shifted, if not completely turned.

For instance, the sources of data-related problems have changed considerably. Starting in the late '90s, there was a clear sense that tech companies were becoming an important source of statistical problems, while financial institutions, insurance, and pharmaceutical companies continued to do most of the industry hiring. This trend continued to accelerate at the beginning of the new millennium (remember the Netflix challenge?) and has reached gargantuan proportions today, to the point where a fair number of mid-career statisticians are leaving academia to work in the tech, bio, or finance sector. More senior statisticians, usually prominent ones, do not leave academia but spent an increasing amount of time consulting with companies and solving their problems. Graduate students leave universities with their advanced degrees and, increasingly, choose industry positions over academic ones. The sparsity of the latter and the extravagant salaries of the former are often cited as the most likely reasons. Perhaps more subtly, the lifestyle gap that was triggered by these two very broadly defined career paths, has gotten smaller, especially when considering the tech sector. Flexible hours, interesting problems and great benefits used to be highly appreciated appurtenances of an academic career; many of them are now within reach for Google, Amazon or Uber employees. Unlike the investment bank or big pharma jobs of yesteryear, the technology ones offer a wide range of problems to work on as well, thus chipping away at one of the last defenses of an academic career: its independence.

Not unexpectedly, many university administrators look at these trends with a worried eye, concerned about the brain drain and the contamination of our intellectual pursuits with more pedestrian interests. Doomsayers are predicting the imminent end of higher education, of course. I believe the alarms have gone off way too early, and on the academic side of the equation the tendency to "dig in our heels" might turn counterproductive. Rather than panic, perhaps we could work more with our students to ensure that their contributions to the discipline and society are valuable, regardless of the path they choose to pursue. After all, the goal of an educational program should be to produce solid thinkers that can be adaptive and prolific in many environments, not just the academic one. And the alternatives to the latter are multitudes, very different in character and impact.

In many conversations about careers, the government path is often omitted altogether, particularly in North America. This is unfortunate, since the government remains one of the biggest producers and users of data in any society. If you do not believe me, maybe you will believe Michael Lewis, the author who made number crunchers look sexy in *Moneyball*, and who has written about the US government's wide range of essential and life-preserving activities in his book, *Fifth Risk*. Others understood the call early on. For instance, the newly created Data Science Institute at the University of Chicago has announced a partnership between the University of Chicago and City Colleges of Chicago (CCC), to germinate the "next generation of data science educators and broaden participation in this rapidly growing new field, building an inclusive, scalable model for expanding STEM education and careers nationwide."

A bidirectional transfer of knowledge from universities to industry and government is beneficial to all partners. For one, academic research can be enriched with a stream of new problems and, perhaps, a fresh perspective on finding practical solutions. While it can be tempting to ignore contemporary trends—some might even call them fads—it does not mean that we must work only on problems that are invariant to time travel. Otherwise, we will continue to see low investment in our people and ideas, thus converting many a talented academic statistician from data science stakeholder into frustrated bystander.

I hasten to add that this reluctance is not at all mirrored by our biggest partner in the data science ecosystem, computer science. This large field of study has multiple research threads, some enmeshed firmly with the purely mathematical side of the discipline, and others that share a large swath of intellectual domain with statistics, such as data visualization and ethics, machine learning, optimization algorithms, data privacy, etc. It is among academics in the latter groups where one notices a stronger desire to engage with the real-world applications, be they in genetics, medicine, entertainment, finance, real estate, or a large and diverse range of engineering companies. While we "resist" the corruption

Continues on **page 12**

of our research agenda with problems that deviate from the classical paradigm, our esteemed colleagues pull up their sleeves and jump into the messiness of data that are dark or corrupted, using models that are heavily computational, somewhat empirical perhaps… oh well, you know the drill. It has been played on repeat for the last decade, since Data Science emerged as a field of interest to many.

I, for one, am planning to answer more often one of those emails asking for help from one intrepid company or another. The few times I answered such a call, I found myself in the company of people with whom I shared the frustration of dealing with a puzzle, be it an unyielding computational problem or data that abscond with the truth. I left each such encounter with a renewed sense of purpose and feelings of solidarity.

These days, that's an unexpected gift.

Turning statisticians into BFF-ers

Radu Craiu also reports on two recent conferences in Toronto:

The month of May has been a happening one for the Department of Statistical Sciences (DSS) at the University of Toronto. We started strong by hosting in our new space the Seventh Bayesian, Frequentist and Fiducial conference on May 2–4, 2022. The event had been originally scheduled to take place in May 2020 and was delayed because of the COVID pandemic.

The BFF series has traditionally focused on the foundations of statistics, placing emphasis on the three paradigms that have historically been at the center of our discipline. As stated on the BFF official website, bff-stat.org, "The Bayesian, Fiducial, and Frequentist (BFF) community began in 2014 as a means to facilitate scientific exchange among statisticians and scholars in related fields that develop new methodologies linked to the foundational principles of statistical inference. The community encourages and promotes research activities to bridge foundations for statistical inferences, to facilitate objective and replicable scientific learning, and to develop analytic and computing methodologies for data analysis."

This year's edition kept with tradition but also added computational and philosophical considerations into the mix. Sessions spanned a wide range of topics that included foundational and philosophical debates, nonstandard analysis for advancing BFF, methods to address the reproducibility crisis, information fusion, likelihood free computation and inference, and methods for large and complex data.

The full schedule is available at bit.ly/BFF7Conference

This year's BFF was dedicated to the memory of Donald S. Fraser and the program included a session, organized by Nancy Reid, where the speakers were Don's former collaborators, Mylène Bédard and Ana-Maria Staicu, as well as Todd Kuffner who presented an inspired review of Don's research interests and their evolution in time.

The conference was organized in hybrid format, and the organizers were relieved to see that 40 out of 130 participants came to Toronto in person. This injected the proceedings with a great deal of energy, leading to vigorous question periods and productive coffee break discussions.

BFF7 was immediately followed on May 5 by "Statistics at Its Best," a one-day conference organized by Radu Craiu and Grace Yi in honour of Nancy Reid's 70th birthday. The speakers in the latter event included Alessandra Brazzale, Alicia Carriquiry, Anthony Davison, Christian Genest, Ed George, Rob Kass, Andrew McCormack, Mary Thompson and Jim Zidek. The conference banquet was attended by over 80 people and featured speeches from Jim Berger, Radu Craiu, Charmaine Dean, Don Estep (in absentia), Donelle and Ailie Fraser, Ed George, Peter McCullagh, James Stafford, Lisa Strug, Mary Thompson (in absentia), and Grace Yi.

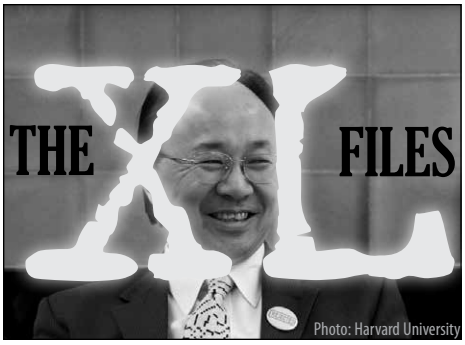
Both events were organized in collaboration with Gravity Pull and funded in part by Toronto's DSS and CANSSI. They were among this year's scientific activities celebrating the 50th anniversary of the Statistical Society of Canada.

Please have a look at some photos of this year's BFF (https://bit.ly/3HMHbuz) and "Statistics at Its Best" (https://bit.ly/3HTxevG).

Photo: Priya Sivathason

Nancy Reid, enjoying the banquet in celebration of her 70th birthday

When a Statistician becomes a (COVID) Statistic



Xiao-Li Meng got it. COVID, that is. But the silver lining is that he now makes a welcome return to writing the "XL-Files":

What happens when a statistician becomes a COVID statistic? Well, first of all, a COVID fever reignited my XL fervor. No, the missing "XL-Files" have not been due to lack of shareable stories in my life (if I have one). Launching and editing *Harvard Data Science Review* (*HDSR*) alone has given me abundant excitements to regale and frustrations to vent, including not having time to vent. The general data science community apparently lifts up more those who have developed the skills to benefit from NeurIPS or ICML kinds of pressing deadlines, instead of *Annals*-esque requests for deeper probing. However, illness tends to reset priorities, rearrange calendars, and remind us of our roots. Usually temporary, unfortunately, or maybe fortunately, depending how you look at it.

Regardless of how long the fever lasted, here I am, reopening the "XL-Files," while appreciating the luxury of being able to repeat this mantra for the $(n+1)$st time: *Every cloud has a silver lining*.

The unexpected motivation, from a participant of a conference—the one where COVID finally got hold of me after chasing me unsuccessfully for over two years—was also responsible for this reopening. Her message that she had used some "XL-Files" for teaching was as encouraging to me as—I imagine—a novice wine maker who finds its product is being sampled by a WSET class.

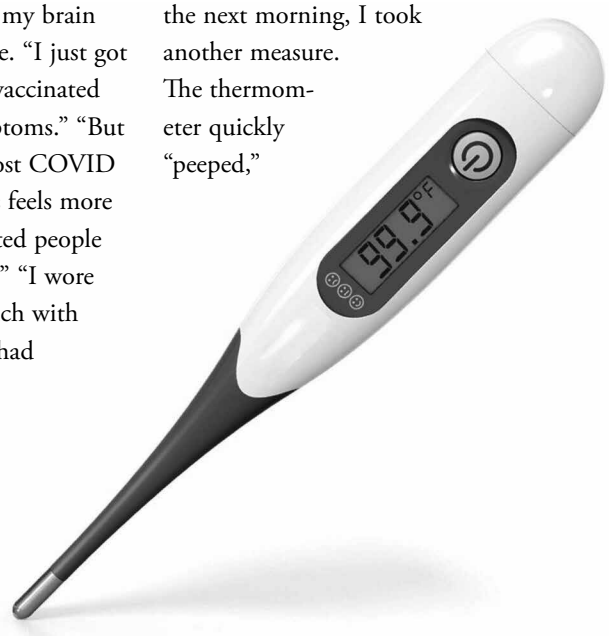
Secondly, my COVID episode personalized several research areas that have been competing for much of my (non-feverish and non-*HDSR*) time: individualized risk and prediction, imprecise probability, data quality, and data privacy. I submit these stories of personalization for your judgment as to whether they are results of an overfitting neural network attempting to bootstrap itself out of a natural annealing process. But regardless how your non-artificial neural network differs from mine, I hope we share a time-honored lesson: preaching is far easier than practicing.

The onset of the COVID was signaled by a rather sudden sense of chill, much like entering a wine cellar without being prepared for the immediate temperature drop. There could be a variety of reasons for feeling sick after a week-long travel but knowing someone at conference had just tested positive for COVID obviously should increase my chance of being infected. However, what does "my chance" actually mean here, and in what ways it is affected by my other data? As my body was getting busy with a rising temperature, my brain had its own fervent self-dialogue. "I just got tested negative, and I am fully vaccinated and boosted." "But I have symptoms." "But I had symptoms before, and most COVID cases have no symptoms." "This feels more like a bad flu." "But most infected people reported that it *is* like a bad flu." "I wore masks." "But I went out for lunch with others, and at the banquet few had masks on." "But …"

Wait. Where was the Bayes theorem? What events were being conditioned upon? Did my brain just commit a prosecutor's fallacy? Wait, wait. How could anyone apply the Bayes theorem here? What numbers can be plugged in? Where could those number—any number—come from? Wait, wait, wait. Where was the Dempster's rule of combination when it's most needed? And what were pieces to be combined? Where were p (I have COVID), q (I don't have COVID), and r (I have no idea)? Did my brain just convince itself that r increases with the duration of the dialog? Is that a form of dilation or more a hallucination?

Fortunately, there is a rapid test that can rapidly stop the hallucination, or at least give me an instrument to greatly reduce r. Having reduced r, I could concentrate on reducing the fever. Another instrument came to help: the fever was 99.9°F (37.7°C) the first night I returned from the conference and got a digital thermometer from a local pharmacy store. The measuring process took longer than I expected, but everything I preached about using $n>1$ was completely suppressed by my annealed brain. I surmised that it was afraid of engaging in another r-increasing exercise.

Waking up soaked in Tylenol-enhanced sweat the next morning, I took another measure. The thermometer quickly "peeped,"



reporting 100ºF (37.8ºC). Wait. That couldn't be right. I felt less feverish, and the peep came way too fast, compared to that of the night before. I had to measure it again. It took a bit longer, but it gave a number that stopped me from employing $n=3$: 99.4 (37.4ºC). It just *felt right*. And when my concerned family members call, I could honestly tell them not to worry as my fever had gone down.

Honestly? Well, I don't think I need to insult any *IMS Bulletin* reader's intelligence by explaining the logical equivalence between, "What's wrong with choosing numbers that can make me feel better and comfort others?" and, "What's wrong with choosing data to support my values and ideology and to unite all people who support the same?" But actively reflecting upon how we behave differently—consciously, or subconsciously—as private individuals as opposed to professional members can remind us, minimally, of paying more attention to data *minding* before data mining or analysis. For example, modeling measurement errors for self-reported measures such as blood pressures, weight, food intake, amount of exercise, etc., should never be done by only considering adding a convenient Gaussian error or any symmetric error.

Yes, our individual behaviors are sufficient to cast strong doubts about such convenient assumptions when we have reliable priors on the similarities of human behaviors. I have never witnessed any of you ignoring or discarding any survey and hence making yourself a contributor to the big headache of non-response bias, in which I invested a considerable amount of my professional time to ease. Yet, I am willing to put my professional reputation (if I have one) on the line to state that statistically speaking, we all have contributed to this problem multiple times in our private lives, drawing from my experience of not being able to answer over 95% of the surveys I receive every year, no matter how hard I compel myself on a professional and moral ground. (If I have just insulted you by implying your moral standard is as low as mine, please be in touch so I can send you an *HDSR* readership survey as a token of my apology.)

Data privacy is another area where reflecting on our private behaviors may have professional benefits (and vice versa). Bluntly, data privacy is an oxymoronic term, because data are born to reveal, yet privacy requires us to conceal. Periodically reflecting upon our private behaviors should help us better appreciate how complex the issue is, be more sensible in making professional demands, and give others the benefit of doubt when they seem to make the data less private or useful than our preferred level of trade-off (or lack thereof).

My COVID encounter reminded me of this possibility because of the actual instance of trading between providing timely contact tracing information and protecting the privacy of the infected individuals. Identities are critical for contact tracing, and I'm deeply grateful for such information volunteered by an Individual, who also shared the experience of the rapid onset without warning signs. This timely information, and the knowledge that it could strike rather suddenly, gave me just enough time, and reason, to make arrangements with my family for a minimax quarantine strategy before I got home—an arrangement that, retrospectively, we are all glad that we made.

If physical health is the only metric for optimization, one may argue that any personal information that can help others to reduce the risk of delayed treatments or the spreading of the virus should be shared as quickly and as widely as possible among (in this case) the conference attendees, regardless of how the information is obtained. Again, I don't need to insult anyone's intelligence by explaining why a single metric, however well-intended and well-designed, would almost always fall short in addressing problems in the human ecosystem. But my intelligence is seriously auto-insulated by my failure to find a privacy-preserving narrative that would reveal an additional privacy dilemma this conference faced, but without increasing the privacy-loss budget for any meeting attendees, especially those who do not wish to disclose their COVID status. Protecting privacy is extremely hard, because information travels like a virus. (It also mutates as it spreads.)

I may as well take the cue and stop here before this self-invited feverish reopening remark becomes an editor-invited closing remark for the "XL-Files." But I still need to credit where credit is due. Can anyone help to locate the original source of this inspiration for the title of this column? *"Don't become a statistic, drive safely. Go to graduate school—become a statistician"?*

Recent papers: two IMS-supported journals

Bayesian Analysis

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. The Editor-in-Chief is Mark Steel (University of Warwick, UK).
Access papers at **https://projecteuclid.org/journals/bayesian-analysis**

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Brazilian Journal of Probability and Statistics

The *Brazilian Journal of Probability and Statistics* is an official publication of the Brazilian Statistical Association and is supported by the IMS. The Journal publishes papers in applied probability, applied statistics, computational statistics, mathematical statistics, probability theory and stochastic processes. The Editor is Mário de Castro. Access papers at **https://projecteuclid.org/journals/brazilian-journal-of-probability-and-statistics**

Volume 36, No 2, May 2022

International Day for Women in Statistics and Data Science

The Caucus for Women in Statistics (CWS) and the Portuguese Statistical Association (SPE) are proud to announce the launching of the International Day for Women in Statistics and Data Science (IDWSDS) with its first annual celebration event on October 11, 2022 (the second Tuesday of October in UTC time). We hope that this will be the annual event for the celebration of women statisticians and data scientists around the world.

Why IDWSDS?

Women are under-represented in Statistics and Data Science. There have been global efforts to increase women in STEM disciplines, such as the UN's International Day of Women and Girls in Science, the International Day for Women in Mathematics, and ISI's International Year of Women in Statistics and Data Science. The responsibility to increase diversity, inclusion and equity falls on each one of us, as we strive to ensure greater future representation among the younger generations within our profession. We must act now. Like the UN and mathematical societies, we propose to create an International Day of Women in Statistics and Data Science (IDWSDS). We will have a virtual conference to celebrate women statisticians and data scientists on the second Tuesday of October.

What is the IDWSDS?

The IDWSDS will promote and celebrate women in statistics and data science all around the globe with a conference. The aims are to:

- Showcase women and their contributions to the field
- Connect women statisticians and data scientists around the world
- Encourage collaborations among statistical societies around the world
- Impact statistics and data science to become more inclusive and diverse
- Bridge statistics and data science

How you can help

The IDWSDS will take place on **October 11, 2022**. We need your help to:

- Communicate and spread the word!
- Sponsor a session or group of dedicated sessions
- Support the event by including your own activities
- Assign a representative to help with the promotion of the event
- Reach out to young people, e.g., hold a Florence Nightingale Day in October for students in middle and/or high school (training would be provided in the summer)

Note that this will be a virtual event in the spirit of the first Around the World conference which means there will be a place for both live and recorded presentations and sessions and other contributions.

Because time flies, do start planning this event in advance. Please check our Twitter account @cwstat for updates and the website (idwsds.org – which will shortly be updated) closer to the event. Submit your session ideas to idwsds1@gmail.com. Thank you in advance for your support!

Caucus for Women in Statistics

Supporting an Inclusive Statistics and Data Science Community

CWS 2022 Societal Impact Award

The Caucus for Women in Statistics (CWS) is pleased to announce the 2022 Societal Impact Award recipient, Dr. **Jana Asher**, Department of Mathematics and Statistics at the Slippery Rock University, for her efforts in combating societal injustice through accurate and ethical quantitative measurement, and for her commitment toward teaching civic responsibility and JEDI principles through statistical practice. Dr. Asher is a fellow of the American Statistical Association and an elected member of the International Statistical Institute.

Dr. **Esther Drill**, Department of Epidemiology and Biostatistics, is the first runner-up for her distinguished leadership and dedication to making the field of biostatistics more inclusive through teaching and service. They will be honored at the CWS reception at JSM this summer.

Congratulations to Drs. Asher and Drill, and thank you for making a positive impact on our society through statistics and data science!

Call for nominations

Do you know someone who you think is deserving of this award? See our website https://cwstat.org/societal-impact-award/ for more information. The next deadline is February 15, 2023.

IMS Medallion Lectures

Vlada Limic

Vlada Limic received her undergraduate degree in mathematics from the University of Zagreb in 1994, and her PhD from the University of California at Berkeley in 1998. She held postdoctoral positions at UC San Diego and at Cornell University. In 2002, Vlada became a junior professor at the University of British Columbia in Vancouver. In 2006, she joined the CNRS (French National Centre for Scientific Research) and worked for six years at the Université de Provence in Marseilles. She was promoted in 2012 to a CNRS research director, initially affiliated to the mathematics department at Paris-Sud Orsay. Starting 2017 her affiliation is the mathematics department at the University of Strasbourg. Most of Vlada's research is either on coalescent processes or on models with reinforcement. In both areas she contributed to solving difficult problems. She was a recipient of the Alfred P Sloan Research Fellowship in 2005, and of the Friedrich Wilhelm Bessel research award from the Alexander von Humboldt Foundation in 2016. This Medallion lecture was given at the IMS Annual Meeting in London.

Multiplicative coalescent related processes

The seminal work by David Aldous introducing the standard multiplicative coalescent, and proving that it is the scaling limit of close-to-homogeneous near-critical random graph component sizes was published twenty-five years ago. His analysis relied on a certain graph exploration process, analogous to a one-dimensional random walk. In the meantime both kinds of processes (multiplicative coalescents, and various random-walk-type exploration processes) became quite popular in the literature.

The aim is to describe some atypical studies involving these kinds of processes, or their relatives. In particular, by the end of the talk you will be able to understand why non-standard multiplicative coalescents may emerge in scaling limits of certain "locally" inhomogenous near-critical graphs (an old result), and why a new and more complicated process, called the interacting multiplicative coalescents, emerges for certain near-critical class-wise homogeneous graphs (a new result in a joint paper with Vitalii Konarovskyi). Some highlights of related studies, available as preprints or still in progress, will be mentioned in passing.

Ramon van Handel

Ramon van Handel is an associate professor, and a member of the executive committee of the Program in Applied and Computational Mathematics (PACM), at Princeton University. He received his PhD in 2007 from Caltech. His honors include the NSF CAREER award, the Presidential Early Career Award for Scientists and Engineers (PECASE), the Erlang Prize, the Princeton University Graduate Mentoring Award, and several teaching awards. He has served on the editorial boards of the *Annals of Applied Probability* and *Probability Theory and Related Fields*, and is the probability editor for the IMS Textbooks and Monographs series. Ramon's research interests lie broadly in probability theory and its interactions with other areas of mathematics. He is particularly fascinated by the development of probabilistic principles and methods that explain the common structure in a variety of pure and applied mathematical problems. His recent interests are focused on high-dimensional phenomena in probability, analysis, and geometry. He has also worked on conditional phenomena in probability and ergodic theory, and on applications of noncommutative probability. This Medallion lecture was given at the Seminar on Stochastic Processes in March 2022.

Nonasymptotic random matrix theory

Classical random matrix theory is largely concerned with the spectral properties of special models of random matrices, such as matrices with i.i.d. entries or invariant ensembles, whose asymptotic behavior as the dimension increases has been understood in striking detail. On the other hand, suppose we are given a random matrix with an essentially arbitrary pattern of entry means and variances, dependencies, and distributions. What can we say about its spectrum? Beside lacking most of the special features that facilitate the analysis of classical random matrix models, such questions are inherently nonasymptotic in nature: when we are asked to study the spectral properties of a given, arbitrarily structured random matrix, there is no associated sequence of models of increasing dimension that enables us to formulate asymptotic questions.

Obituary: Matthew Zack, Jr.

1945–2021


Matthew Marion Zack, Jr.

On July 31, 2021, Matthew Marion Zack Jr. passed away at the age of 76, of pancreatic cancer. He was preceded in death by his father Matthew M. Zack Sr., mother, Ellen Dolores (Kulba) Zack, and brother, John M. Zack. He is survived by a special cousin, Judy Ann (Zack) Dougherty, in Syracuse, NY and other family and friends.

Matt was born in Monterey and raised in Syracuse, where he achieved state and local recognition for his exceptional mathematical skills, graduating as valedictorian at Christian Brothers Academy (1963). After Canisius College (1967, Buffalo, NY), he earned an M.D. at the State University of New York at Syracuse (1971), trained in internal medicine at the Hospital of the University of Pennsylvania (1971–74), and earned an M.P.H. at UC Berkeley's School of Public Health (1978). He joined the Epidemic Intelligence Service, the Center for Disease Control and Prevention (CDC) training program for medical detectives, in 1974 and worked at CDC for 47 years until his death.

At CDC, Dr. Zack was not only one of the agency's foremost authorities on medicine, epidemiology, biostatistics and statistical programming, he often served as a consultant to other Department of Health and Human Service agencies, including the National Institutes of Health, the Food and Drug Administration, Healthy People initiatives, other national and state agencies, and external groups such as the Karolinska Institute and Uppsala University (Sweden), and the United Way. Dr. Zack published over 150 studies in major scientific journals including *Science*, *New England Journal of Medicine*, *Journal of the American Medical Association*, *American Journal of Public Health*, *The Lancet*, and CDC's *Morbidity and Mortality Weekly Report*.

Dr. Zack contributed to the development and expansion of many programs at CDC, playing a pivotal role in the early development of what was to become the CDC's National Center for Environmental Health (NCEH), and later advancing chronic disease epidemiology for multiple programs (e.g., Cancer, Aging Studies, Health-Related Quality of Life, Epilepsy), which were ultimately launched and housed within CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). In 2009, he was recognized with the NCCDPHP Lifetime Scientific Achievement Award.

Dr. Zack published seminal studies in environmental epidemiology, including those on the effects of exposure to dioxins, DDT, PCBs, lead, arsenic, and other chemical waste. His studies included the health effects of 1950s nuclear testing and of Agent Orange exposure on exposed service personnel; chemical exposures to residents of Love Canal, NY; contaminated cooking oil in Spain; and the use of designer drugs and early onset Parkinson's disease. He helped document the increase of heart attacks after snowstorms. Other studies examined health topics ranging from cancers, hip fractures, arthritis, multiple sclerosis, epilepsy, inflammatory bowel diseases, urinary incontinence to procedures like partial gastrostomies.

More direct contributions to health included scientific reviews that led the FDA to fortify grains with folic acid to prevent neural tube defects, and analytical work with the Georgia Department of Human Resources/Division of Aging Services that supported better services for disadvantaged people.

Other notable contributions include his steadfast leadership in guiding CDC in the development, validation, and use of health-related quality of life measures for public health surveillance. These "CDC Healthy Days measures," continually included in both the Behavioral Risk Factor Surveillance System since 1993 and the Medicare Health Outcomes Survey since 2003, and are now widely accepted as robust and useful measures to assess population health, identify disparities, and to guide public health intervention. Most recently, Dr. Zack collaborated with the federal Centers for Medicare and Medicaid Services (CMS) and the health insurance industry to use the Healthy Days measures for health improvement in patient populations.

Above all, Dr. Zack was always willing to share his deep knowledge and passion for research, while offering his scientific acumen, guidance, and insight to his colleagues. He was a dedicated public servant and physician who typically worked many extra hours on his CDC research. His modesty and exemplary commitment to applying the most robust scientific methods served as a model throughout his career to his many trainees and other staff who benefited from his thoughtful collaboration and patient guidance as a mentor, teacher, and friend. A skilled writer who appreciated brevity, Dr. Zack often closed notes to colleagues with, "Do good." In honor of Matt, let's all remember to "Do good."

Slightly condensed from an online obituary at https://www.fischerperimeterchapel.com/obituary/Matthew-ZackJrMDMPH/

Impact of Covid on early-career researchers

Invitation to sciences and social sciences early-career researchers to take part in a study on the impact of the COVID-19 pandemic on their work lives and scholarly communication attitudes and behavior

If you are an early career researcher in the sciences or social sciences, we want to hear from you to learn how the COVID-19 pandemic has affected your work life and attitudes towards scholarly communication. You are invited to participate if you meet ***one*** of the following requirements:

1. you have received your doctorate and are currently working on a research project
2. you are currently undertaking a doctorate and working on a research project
3. you have been in a research position and are now undertaking a doctorate.

Additionally, you should be **less than 45 years old** and also **not tenured**.

Participants will participate in a brief online survey about the impact of the pandemic on their job/work/status, career aims, communication practices, authorship and publishing, and attitudes/beliefs. The survey should take about 25 minutes to complete.

Your personal data will not be collected, and the survey will be completely anonymous.

Participation is voluntary and you are free to discontinue participation without being penalized or disadvantaged. If you are willing to participate, please visit https://utk.co1.qualtrics.com/jfe/form/SV_9TgbMarTialkMku?s=usa.

This project is part of an international research collaboration with CIBER Research and the University of Tennessee Knoxville and is funded by the Alfred P. Sloan Foundation. More about the project can be found at https://sis.utk.edu/2020/11/13/sis-cics-team-awarded-399k-sloan-grant-to-study-early-career-researchers.

The Alfred P. Sloan Foundation is a philanthropic, not-for-profit grant-making institution based in New York City. Established in 1934 by Alfred Pritchard Sloan Jr., then-president and chief executive officer of General Motors, the foundation makes grants in support of original research and education in science, technology, engineering, mathematics, and economic performance. See https://sloan.org/ for more information.

Nominations for the 2023 Sloan Research Fellowships will close on September 15, 2022. For eligibility and nomination details, visit https://sloan.org/fellowships

Brian King

ENAR Distinguished Student Paper

IMS member **Brian King** is among the winners of the 2022 Distinguished Paper Awards from the International Biometrics Society's Eastern North American Region, ENAR. Brian (pictured left) is a PhD student, advised by Dan Kowal, the Dobelman Family Assistant Professor of Statistics, at Rice University. His paper is titled, "Warped Dynamic Linear Models for Time Series of Counts." The winners were recognized during ENAR's 2022 Spring Meeting, in Houston in March.

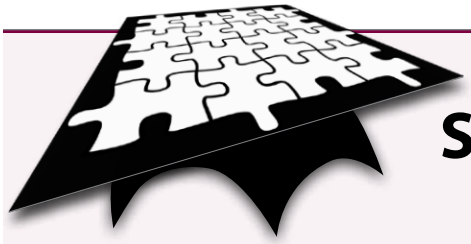
NOMINATE AN IMS SPECIAL LECTURER

Submit a nomination: **https://www.imstat.org/ims-special-lectures/nominations/**

The IMS Committee on Special Lectures is accepting nominations this year for:

- **the 2024 Le Cam Award & Lecture**
- **the 2024 Wahba Award & Lecture**
- **the 2025 Medallion Award & Lecturers (eight awards)**

Send your nomination by October 1, 2022. Information on all lectures is available at https://www.imstat.org/ims-special-lectures/



Student Puzzle Corner 40

Student Puzzle Editor Anirban DasGupta poses what he calls, "an exercise in merriment, on basic statistical inference":

Your friend is thinking of a two-digit positive integer N consisting of two distinct nonzero digits. The friend won't tell you what N is, but will give truthful answers to two yes/no questions.

You ask your friend, "Is it a prime number?"

Then, you ask, "If you reverse the digits of your number, is it still a prime number?"

You have a uniform prior distribution on N. Find explicitly the posterior median of N in the four cases when your friend gives the answers "Yes–Yes," "Yes–No," "No–Yes," and "No–No" to your two questions, respectively.

Do you prefer the posterior median or the posterior mean as your report in this problem, and why?

Deadline: September 15, 2022

Student members of IMS are invited to submit solutions to bulletin@imstat.org (with subject "Student Puzzle Corner").

The names of student members who submit correct solutions, and the answer, will be published in the issue following the deadline.

The Puzzle Editor is Anirban DasGupta. His decision is final.

Solution to Puzzle 39

A reminder of the puzzle:

250 people are each asked to toss a fair coin 10,000 times. Give an approximation with justification to the probability that at least four of them would have obtained exactly 5,000 heads and 5,000 tails.

Simulation-based answers will not be accepted.

Problem Corner Editor Anirban DasGupta explains the previous puzzle:

For $X \sim \text{Bin}(2n, ½)$, let $p_n = P(X = n)$. Let also, for $Y \sim \text{Bin}(m, p)$, and $k \geq 0$, $\theta = \theta(m, p, k) = P(Y \geq k)$. The puzzle asks for θ when $n = 5000$, $m = 250$, $k = 4$, $p = p_n$.

By using the Stirling series for factorials,

$$p_n = \frac{1}{\sqrt{n\pi}} + \frac{1}{8\sqrt{\pi}\, n^{3/2}} + O(n^{-5/2}).$$

With $n = 5000$, we get the approximate value $p = 0.00798$. With $m = 250$, $k = 4$, by using a Poisson approximation, $\theta \approx P(\text{Poisson}(1.995) \geq 4) = 0.14198$.

Interestingly, Mathematica gives an exact value of both p and θ in a rational form. This was pointed out to me by Chris Burdzy and Jon Peterson. Stewart Ethier went ahead and obtained the Mathematica answer for the rational value of θ. The numerator had 752,198 digits and the denominator had 752,199 digits. This rational value took Dr. Ethier 431 pages when converted to a PDF file.

Junshi Wang from the University of Hong Kong sent us a numerical answer to the puzzle. Thank you Junshi!

IMS meetings around the world

Joint Statistical Meetings

2022 Joint Statistical Meetings
August 6–11, 2022. Washington DC
w https://ww2.amstat.org/meetings/jsm/2022/
Registration and housing reservations are open. (Early registration deadline has passed.) The statistical event of the summer, JSM, is in DC this year. Join us August 6–11 to meet new people, talk to old friends, and explore the nation's capital.

JSM dates for 2023–2026

IMS Annual Meeting @ JSM 2023	JSM 2024	IMS Annual Meeting @ JSM 2025	JSM 2026
August 5–10, 2023	August 3–8, 2024	August 2–7, 2025	August 1–6, 2026
Toronto, Canada	Portland, Oregon, USA	Nashville, TN, USA	Boston, MA, USA

South East Probability Conference (the second one in 2022)
August 8–9, 2022. UNC Chapel Hill, USA
w https://services.math.duke.edu/~rtd/SEPC2022/SEPC2022Aug.html
The second 2022 Southeastern Probability Conference (SEPC), held August 8–9 at UNC Chapel Hill, features Julia Gaudio (Northwestern, IE and MS), Jiaoyang Huang (NYU), Hye-Won Kang (U of Maryland), Annie Katsevich (NYU), Nicholas Lancier (Arizona State), Elizaveta Rebrova (Princeton ORFE), Sebastien Roch (Wisconsin), and Philippe Sosoe (Cornell). Graduate students and postdocs can apply for support. See the website for details.

Regularization by Noise for Stochastic Differential and Stochastic Partial Differential Equations NEW
Wednesday, September 21, 2022: 07:00 PT / 10:00 EST / 16:00 CET. Online, via Zoom
w https://youngstats.github.io/post/2022/06/03/regularization-by-noise-for-stochastic-differential-and-stochastic-partial-differential-equations/
The regularizing effects of noisy perturbations of differential equations is a central subject of stochastic analysis. Recent breakthroughs initiated a new wave of interest, particularly concerning non-Markovian, infinite dimensional, and rough-stochastic / Young-stochastic hybrid systems. Selected younger scholars will present their recent works on the topic: Helena Kremp, Freie Universität Berlin, Germany; Lucio Galeati, University of Bonn, Germany; Lukas Anzeletti, Université Paris-Saclay, France; and Igor Honoré, Université Claude Bernard Lyon 1, France. The Discussant is Oleg Butkovsky, Weierstrass Institute for Applied Analysis and Stochastics, Germany.

The webinar is part of YoungStatS project of the Young Statisticians Europe initiative (FENStatS) supported by the Bernoulli Society and the IMS.

IMS annual meeting

Bernoulli–IMS 11th World Congress in Probability and Statistics
August 12–16, 2024
Ruhr-University Bochum, Germany
w TBC

IMS-APRM in Melbourne, Australia
POSTPONED TO JANUARY 2024
The sixth Institute of Mathematical Statistics Asia Pacific Rim Meeting (IMS-APRM) was scheduled to take place in Melbourne, Australia in January 2021. Due to COVID-19 and travel restrictions, the conference has been **postponed until January 2024**. Exact dates to be confirmed.

ENAR

2023 ENAR/IMS Spring Meeting
March 22–25, 2023
Nashville, TN, USA
w https://www.enar.org/meetings/future.cfm

2024 ENAR/IMS Spring Meeting
March 10–13, 2024
Baltimore, MD, USA
w https://www.enar.org/meetings/future.cfm

At a glance: forthcoming IMS Annual Meeting and JSM dates

2022

IMS Annual Meeting: London, UK, **June 27–30, 2022**
JSM: Washington DC, **August 6–11, 2022**

2023

IMS Annual Meeting @ JSM: Toronto, **August 5–10, 2023**

2024

IMS Annual Meeting/ 11th World Congress: Bochum, Germany, **August 12–16, 2024**
JSM: Portland, OR, **August 3–8, 2024**

2025

IMS Annual Meeting @ JSM: Nashville, TN, USA, **August 2–7, 2025**

2026

IMS Annual Meeting: TBD
JSM: Boston, MA, **August 1–6, 2026**

More IMS meetings

2022 Workshop on Statistical Network Analysis and Beyond (SNAB2022)
August 3–5, 2022. New York, USA

w https://yangfeng.hosting.nyu.edu/snab2022/

The 2022 Workshop on Statistical Network Analysis and Beyond (SNAB2022) will be held on August 3-5, 2022, and will be hosted by the NYU School of Global Public Health, Department of Biostatistics. We are bringing together researchers on network analysis and beyond to exchange ideas and recent works through this workshop. The workshop will cover topics including analysis of social networks and biological networks, tensor analysis, and deep learning. The registration fee is $150 (regular) and **free** for students. Register via the website above: deadline July 21.

Asia-Pacific Seminar in Probability and Statistics
Ongoing and online

w https://sites.google.com/view/apsps/home

The Asia-Pacific Seminar in Probability and Statistics (APSPS) is a monthly online seminar, broadcast on a mid-month Wednesday via Zoom. The seminar series was created as a permanent forum for good research in the field. Topics include: probabilistic models for natural phenomena, stochastic processes and statistical inference, statistical problems in high-dimensional spaces, asymptotic methods, statistical theory of diversity. The organizers — Sanjay Chaudhuri (NUS, Singapore), Mark Holmes (University of Melbourne, currently at UBC, Vancouver), Estate Khmaladze (VUW, Wellington; Chair), Krishanu Maulik (ISI, Kolkata), Spiro Penev (UNSW, Sydney), Masanobu Taniguchi (Waseda University, Tokyo), Lijiang Yang (Tsinghua University, Beijing), and Nakahiro Yoshida (University of Tokyo) — seek an emphasis on novelty, beauty, and clarity. Presentations are intended to be accessible to good postgraduate students in probability and mathematical statistics.

If you are interested in receiving email announcements about the next speakers, send an email to any of the Board members listed above.

BNP13: the 13th Conference on Bayesian Nonparametrics
October 24–28, 2022 in Puerto Varas, Chile

w https://midas.mat.uc.cl/bnp13/

This meeting aims to gather in Chile leading experts in this already consolidated and rapidly expanding field for a full week of plenary, invited, contributed and poster talks, reflecting the many and varied aspects of the theoretical, methodological, and applied work in the discipline. We also expect to attract many young researchers to the event, especially those residing in South America and in Chile. The event features three keynote lectures (free topic), invited and contributed sessions, spanning all the wide spectrum of theory, methodology and applications of Bayesian methods from the nonparametric viewpoint: asymptotics, advanced computation, robustness, inference in high-dimensional settings, deep learning, machine learning, uncertainty quantification, clustering and applications.

2022 IMS International Conference on Statistics and Data Science (ICSDS)
December 13–16, 2022. Florence, Italy

w https://sites.google.com/view/icsds2022

The first IMS International Conference on Statistics and Data Science (ICSDS) is to be held in Florence, Italy, from December 13–16, 2022. The objective of ICSDS is to bring together researchers in statistics and data science from academia, industry and government in a stimulating setting to exchange ideas on the developments in modern statistics, machine learning, and broadly defined theory, methods and applications in data science. The conference will consist of plenary sessions, and about 50 invited, contributed and poster sessions. **Young researchers are particularly encouraged to participate**, with a portion of the invited sessions designated for them. Plenary speakers: Emmanuel Candès, Guido Imbens, Susan Murphy, Sylvia Richardson.

One World ABC Seminar: Ongoing and online

w https://warwick.ac.uk/fac/sci/statistics/news/upcoming-seminars/abcworldseminar

The One World Approximate Bayesian Computation (ABC) Seminars are **monthly** seminars that take place via Zoom on Thursdays, typically 9.30am or 1.30pm [UK time]. Register to receive the webinar link via email. The organizers welcome proposals for future talks. This webinar is part of the larger One World seminar initiative [*see below*].

One World Probability Seminar (OWPS): Ongoing and online

w https://www.owprobability.org/one-world-probability-seminar/

Thursdays, 14:00 UTC/GMT [resuming in September]. Please subscribe to the mailing list for updates about the upcoming seminars and other events: https://www.owprobability.org/mailing-list

Other meetings around the world

[Hybrid] Mathematics of Data Science (MDS22)
September 26–30, 2022
San Diego, USA, and online
w https://www.siam.org/conferences/cm/conference/mds22
This is the second Society for Industrial and Applied Mathematics (SIAM) conference on Mathematics of Data Science. Providing a forum to present work that advances mathematical, statistical, and computational methods in the context of data and information sciences, it aims to bring together researchers who are building foundations for data science and its applications across science, engineering, technology, and society. Registration deadline: September 1.

2022 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop
September 20–22, 2022
Rockville, MD, USA
w https://ww2.amstat.org/meetings/biop/2022/
"Statistics Post-Pandemic: Paving the Scientific Path to Treatments, Vaccines, and Diagnostics." Early registration ends August 16. Be sure to take advantage of early registration rates and book your room soon. Space is limited, and the workshop sells out every year. In addition to thought-provoking plenary and concurrent sessions, the workshop offers short courses, roundtable discussions, and a poster session—making this the most relevant conference for statistical practitioners in the biopharmaceutical arena.

Short courses have an additional fee and can be added at registration. Short courses include: *Nuts and Bolts of Defining Estimands and Constructing Estimatiors Based on ICH E9 Addendum (R1); Leveraging External Data Through Bayesian Methods in Clinical Trials; Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables; Design Considerations and Statistical Methods for Vaccine Clinical Trials; R for Clinical Study Reports and Submission; Estimand Framework Implementation; Use of External Data in Clinical Trials: Unleashing the Power of Information; Leveraging Real-World Data in Medical Product Clinical Trials Design and Analysis; Estimating Treatment Effect in a Principal Stratum: Applications of Causal Inference to the Tripartite Estimand Approach (TEA) and Early Biomarker Response; Cell and Gene Therapy: Concepts, Rationale, Statistical Issues, and Regulatory Considerations.*

ICHPS 2023 International Conference on Health Policy Statistics
January 9–11, 2023
Scottsdale, Arizona, USA
w https://ww2.amstat.org/meetings/ichps/2023/
The theme for the 14th International Conference on Health Policy Statistics is *Upgrading the Pipeline from Health Data to Health Policy*.

Employment Opportunities

United States: California / Remote
Unlearn AI
Director, Biostatistics Research
https://jobs.imstat.org/job/director-biostatistics-research/63290047/

United States: Fort Collins, CO
Colorado State University
Research Associate II
https://jobs.imstat.org/job/research-associate-ii/63482358/

United States: New Haven, CT
Yale School of Public Health
Investigator Track Position in Biostatistics
https://jobs.imstat.org/job/investigator-track-position-in-biostatistics/63480833/

United States: Lincoln, NE
University of Nebraska Lincoln, Department of Statistics, IANR
Open Rank Professor - Bayesian Statistician
https://jobs.imstat.org/job/open-rank-professor-bayesian-statistician/64149412/

United States: Philadelphia, PA
University of Pennsylvania, Wharton Department of Statistics and Data Science
Full or Part-time Lecturer in Statistics and Data Science
https://jobs.imstat.org/job/full-or-part-time-lecturer-in-statistics-and-data-science/63388253/

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: ims@imstat.org

At the time of writing, some meetings are known to be POSTPONED or canceled. Where new dates are known, they are included here. Some meetings, marked ONLINE, are offering a virtual format. Please check meeting websites for updates.

Online and Ongoing

ONLINE IMS **Asia-Pacific Seminar in Probability and Statistics** w https://sites.google.com/view/apsps/home

ONLINE IMS **COPSS–NISS COVID-19 Data Science Webinar series** w https://www.niss.org/copss-niss-covid-19-data-science-webinar-series

ONLINE IMS **One World ABC Seminar** w https://warwick.ac.uk/fac/sci/statistics/news/upcoming-seminars/abcworldseminar

ONLINE IMS **One World Probability Seminar** w https://www.owprobability.org/one-world-probability-seminar

ONLINE IMS **One World YoungStatS Webinar series** w https://youngstats.github.io/categories/webinars/

ONLINE **Video series:** *The Philosophy of Data Science* w https://www.podofasclepius.com/philosophy-of-data-science

August 2022

August 2–13: Campinas, Brazil. **São Paulo School of advanced science on singular stochastic partial differential equations and their applications** w https://www.ime.unicamp.br/spas2022/

IMS August 3–5: New York, USA. **2022 Workshop on Statistical Network Analysis and Beyond (SNAB2022)** w https://yangfeng.hosting.nyu.edu/snab2022/

IMS August 3–6: George Mason University, VA, USA. **22nd Meeting of New Researchers in Statistics and Probability** w https://imstat.org/nrc2022/

IMS August 6–11: Washington DC, USA. **JSM 2022** w https://ww2.amstat.org/meetings/jsm/2022/

IMS August 8–9: UNC Chapel Hill, USA. **South East Probability Conference** (2 of 2 in 2022) w https://services.math.duke.edu/~rtd/SEPC2022/SEPC2022.html

August 21–25: Newcastle, UK. **International Conference for Clinical Biostatistics** w http://www.iscb.info/

September 2022

September 7–10: UC Santa Cruz, CA, USA. **O'Bayes 2022** w https://obayes.soe.ucsc.edu/

September 12–15: Aberdeen, UK. **RSS International Conference** w https://rss.org.uk/training-events/conference2022/

NEW September 20–22: Rockville, MD, USA. **2022 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop** w https://ww2.amstat.org/meetings/biop/2022/

ONLINE NEW IMS September 21: Online. **Regularization by Noise for Stochastic Differential and Stochastic Partial Differential Equations** w https://youngstats.github.io/post/2022/06/03/regularization-by-noise-for-stochastic-differential-and-stochastic-partial-differential-equations/

NEW September 26–30: San Diego, USA, and online. [**Hybrid**] **2022 SIAM conference on Mathematics of Data Science** (MDS22) w https://www.siam.org/conferences/cm/conference/mds22

Continues on **page 26**

International Calendar *continued*

October 2022

ims October 24–28: Puerto Varas, Chile. **BNP13: Bayesian Nonparametrics w** https://midas.mat.uc.cl/bnp13/

December 2022

ims December 13–16: Florence, Italy. **IMS International Conference on Statistics and Data Science (ICSDS) w** https://sites.google.com/view/icsds2022

December 18–20: Hong Kong. **ICSA International Conference w** https://www.icsa.org/12th-icsa-international-conference-december-18-20-2022/

January 2024

January 9–11: Scottsdale, USA. **ICHPS 2023 International Conference on Health Policy Statistics w** https://ww2.amstat.org/meetings/ichps/2023/

March 2023

ims March 22–25: Nashville, USA. **2023 ENAR/IMS Spring Meeting w** http://www.enar.org/meetings/future.cfm

July 2023

July 15–20: Ottawa, Canada. **ISI World Statistics Congress w** https://www.isi2023.org/

August 2023

ims August 5–10: Toronto, Canada. **IMS Annual Meeting at JSM 2023 w** http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

January 2024

POSTPONED ims January dates TBC (postponed from January 2021): Melbourne, Australia. **IMS Asia Pacific Rim Meeting (IMS-APRM2021) w** http://ims-aprm2021.com/

March 2024

ims March 10–13: Baltimore, USA. **2024 ENAR/IMS Spring Meeting w** http://www.enar.org/meetings/future.cfm

July 2024

Dates TBC: Venice, Italy. **ISBA World Meeting 2024 w** https://bayesian.org/2024-world-meeting/

August 2024

ims August 3–8: Portland, OR, USA. **JSM 2024 w** http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

ims August 12–16: Bochum, Germany. **Bernoulli/IMS World Congress in Probability and Statistics w** TBC

August 2025

ims August 2–7: Nashville, TN, USA. **IMS Annual Meeting at JSM 2025 w** http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

August 2026

ims August 1–6: Boston, MA, USA. **JSM 2026 w** http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

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 ims@imstat.org, or you can submit the details yourself at https://www.imstat.org/ims-meeting-form/ We'll list them here in the Bulletin, and on the IMS website too, at imstat.org/meetings-calendar/

Membership and Subscription Information: 2022

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 $105. An additional $120 is added to the dues of members for each scientific journal selected ($77 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 2022 are available to *The Annals of Applied Probability* ($235), *The Annals of Applied Statistics* ($235), *The Annals of Probability* ($235), *The Annals of Statistics* ($235), *Statistical Science* ($192), and *IMS Bulletin* ($115). **General subscriptions** are for libraries, institutions, and any multiple-readership use. Institutional subscriptions for 2022 are available to *The Annals of Applied Probability*, *The Annals of Applied Statistics*, *The Annals of Probability*, and *The Annals of Statistics* (each title $536 online only / $649 print+online), *Statistical Science* ($307/$370), and *IMS Bulletin* ($153 print). Airmail delivery is no longer offered.

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.

The *IMS Bulletin* (ISSN 1544-1881) is published eight times per year, in January/February, March, April/May, June/July, August, September, October/November and December, by the Institute of Mathematical Statistics, 9760 Smith Rd, Waite Hill, Ohio 44094, USA. Periodicals postage paid at Cleveland, Ohio, and at additional mailing offices. Postmaster: Send address changes to 9760 Smith Rd, Waite Hill, Ohio 44094, USA or dues.subs@imstat.org. Printed by The Sheridan Press, 450 Fame Avenue, Hanover, PA 17331, USA.

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 3,500 paper copies, and it is also free online in PDF format at https://www.imstat.org/ims-bulletin-archive/, posted online about two weeks before mailout (average downloads over 8,000). Subscription to the *IMS Bulletin* costs $115: call 877-557-4674 (US toll-free) or +1 216 295 2340 (international), or email dues.subs@imstat.org. The IMS website, https://imstat.org, established in 1996, receives over 30,000 visits per month.

Advertising job vacancies: A single 60-day online job posting costs just **$329.00**. 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 https://jobs.imstat.org

Advertising meetings, workshops and conferences: Meeting announcements here and on the IMS website at https://imstat.org/meetings-calendar/ are free. Submit your meeting details at https://www.imstat.org/ims-meeting-form/

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 (min. 300dpi, with all fonts embedded). Email your advert to Elyse Gustafson ims@imstat.org or see https://imstat.org/advertise

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1/3 page *vertical*	2.39" wide x 9.42" high (60.7 x 239.1 mm)	$305
1/2 page *horizontal*	7.5" wide x 4.7" high (190.5 x 119.4 mm)	$380
1/2 page *vertical*	3.67" wide x 9.42" high (93.1 x 239.1 mm)	$380
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Full page (within usual Bulletin margins)	7.5" wide x 9.42" high (190.5 mm x 239.1 mm)	$520

Deadlines and mailing 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

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the next issue is

September 2022

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