Volume 52 • Issue 4

The members' magazine of the Institute of Mathematical Statistics

IMS Bulletin

June/July 2023

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IMS Carver Award 2023

Leif Döring named 2023 IMS Carver Medal Recipient for Outstanding Service

The Institute of Mathematical Statistics (IMS) is proud to announce that **Leif Döring**, Professor of Probability Theory at the University of Mannheim, has been awarded the 2023 IMS Carver Medal for his exceptional service to the organization.

Professor Döring was selected for the award in recognition of his initiative and leadership in organizing the Bernoulli–IMS One World Symposium in August 2020, in response to the cancellation of the previously planned 10th World Congress due to the Covid-19 pandemic. Professor Döring and his committee created an innovative and highly successful virtual symposium, bringing together over 3,000 registered participants from around the world. The symposium provided an exceptional platform for new researchers and included exciting live talks, as well as over 600 video presentations.

Both the IMS and the Bernoulli Society praised Professor Döring's achievement in our respective newsletters. You may remember an interview with Leif Döring in the December 2020 *IMS Bulletin* (and at https://imstat.org/2020/11/15/one-world-symposium-leif-doring-interviewed, which was condensed slightly from the *Bernoulli News* item https://www.bernoullisociety.org/files/BernoulliNewsNovember2020.pdf).

Leif Döring is a full professor in the Institute of Mathematics at the University of Mannheim in Germany, and since 2022, vice-dean of research in the Department of Mathematics and Computer Science. He studied Mathematics and Computer Science at the University of Konstanz and Yale University and obtained his doctorate degree in 2009 in probability theory from the Technical University Berlin. Before joining the University of Mannheim he was a postdoc in Oxford, Paris and Zurich. His research interests focus on theoretical aspects of stochastic processes, currently mostly on variants of Lévy processes. As well as the Bernoulli–IMS One World Symposium, he started with others the virtual One World Probability Seminar and initiated a series of further one world seminars. Presently, he is an associate editor of the *Electronic Journal of Probability*.

The Carver Medal is named in honor of Harry C. Carver, a founding editor of the *Annals of Mathematical Statistics* and one of the original IMS founders. Professor Döring's dedication and service to the IMS community exemplify the values and legacy of Harry C. Carver, making him an outstanding choice for this prestigious award.

IMS Bulletin

Volume 52 • Issue 4
June/July 2023
ISSN 1544-1881

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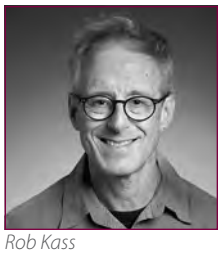
IMS Members' News

US National Academy of Sciences elects members


Rob Kass


Xihong Lin


Alison Etheridge

The United States National Academy of Sciences (NAS) has announced the election of 120 members, and 23 international members, in recognition of their distinguished and continuing achievements in original research. Those elected this year bring the total number of active members to 2,565 and the total number of international members to 526. International members are nonvoting members of the Academy, with citizenship outside the United States.

Among those elected are the following three IMS members and Fellows: **Robert E. Kass**, Maurice Falk Professor of Statistics and Computational Neuroscience and Endowed Chair, Carnegie Mellon University, Pittsburgh; **Xihong Lin**, coordinating director, program in quantitative genomics, Harvard T.H. Chan School of Public Health; and professor of statistics, Department of Biostatistics, Harvard University, Boston; and **Alison Etheridge**, professor of probability, department of statistics, University of Oxford (UK: international member).

Also well-known in our community is **Dominique Picard**, emeritus professor, mathematics, Paris Diderot University, who was elected an international member.

Rollo Davidson Prizes

The 2023 Rollo Davidson Prizes are awarded to IMS member **Duncan Dauvergne** (University of Toronto), for outstanding contributions to the theory of random sorting networks and for the construction and study of the directed landscape; and to **Nina Holden** (New York University) and **Xin Sun** (University of Pennsylvania) for leading work on random planar maps and Liouville quantum gravity. The Prizes have been awarded annually to young probabilists since 1976.

Rahul Singh selected for REStud Tour

Some of the most promising graduating PhD students in economics and finance in the world are selected each year to present their research on the Review of Economic Studies (REStud) Tour. It was formerly known as the Review of Economic Studies May Meetings. **Rahul Singh**, Massachusetts Institute of Technology [*who is also one of the IMS Hannan Graduate Student travel award winners, listed on page 22–23*] is among those selected this year.

David Cox remembered in special journal issue

The latest issue of the open access journal, *Harvard Data Science Review* (https://hdsr.mitpress.mit.edu/ issue 5.2, Spring 2023) contains a special theme celebrating the life and work of **Sir David Cox**, "a giant in statistics and in science in general." Edited by Sylvia Richardson and Nanny Wermuth, the special collection of twenty articles consists of personal memories and reflections by Cox's former students and close colleagues. Read them at https://hdsr.mitpress.mit.edu/celebrating-sir-david-cox.

Nancy Reid receives David R. Cox Foundations of Statistics Award

For her contributions to the foundations of statistics that significantly advanced the frontiers of statistics, and for insight that transformed understanding of parametric statistical inference, **Nancy Reid** is the inaugural recipient of the **David R. Cox Foundations of Statistics Award**, presented by the American Statistical Association. Professor Reid will formally receive the award and deliver a lecture at the Joint Statistical Meetings in Toronto in August. Reid, university professor of statistical sciences at the University of Toronto, co-authored with David Cox a 1987 *Journal of the Royal Statistical Society, Series B* discussion paper titled "Parameter Orthogonality and Approximate Conditional Inference." With this paper, and subsequent work with Cox and others, Reid has made major contributions to higher-order inference and various aspects of conditioning.

In addition to her work in foundational areas of statistics, Reid has successfully pursued numerous other lines of research, contributing to experimental design, nonparametric statistics, robust statistics, and comparisons and contradictions between Bayesian and frequentist inference.

The David R. Cox Foundations of Statistics Award was created in 2022 through an endowment created by Deborah G. Mayo, professor emerita of philosophy at Virginia Tech. The ASA presents the award in odd-numbered years. The recipient receives a $2,000 honorarium and is invited to give a lecture at the Joint Statistical Meetings.

Christian Genest awarded 2023 CRM–Fields–PIMS Prize

The Centre de recherches mathématiques (CRM), the Fields Institute and the Pacific Institute for the Mathematical Sciences (PIMS) selected Professor **Christian Genest** of McGill University to receive the 2023 CRM–Fields–PIMS Prize. Genest delivered the CRM–Fields–PIMS Prize Lecture at the Fields Institute in April.

Genest is one of the leading statisticians in Canada, whose work has had dual impact on both theory and real-world applications. He is best known for his contributions to multivariate analysis and was a pioneer in the expansive use of copula models in science. Together with a few close collaborators, he combined nonparametric methods and the asymptotic theory of empirical processes to design a broad array of rank-based inference tools for building, selecting, fitting, and validating stochastic models within this class. Additionally, Genest has contributed to group decision making, prioritization techniques, multivariate extreme-value theory and, most recently, to space-time modeling of rare events in environmental science.

"Christian Genest has contributed fundamental and pioneering work in a wide range of problems focused on statistical theory," said the awards committee. "His work on copulas, in particular, has had significant impact on our understanding of the risks of rare and catastrophic events. Moreover, he is a prolific and successful advisor and multiple-time winner of best teacher award in the Faculty of Science and Engineering at Université Laval."

Genest pointed out that his success is a direct result of having the right people around him, from his collaborators to his graduate students and entire family. "Research is a complex, long-term venture; it is increasingly difficult to get anything done alone. I like to motivate people and I was lucky to be able to build a team around me and draw expertise from those I've collaborated with for many years," he said. "But our work is also part of a larger scientific agenda to which many others are contributing. To me, this award is mostly the recognition of the importance of our field and the impact of our contributions."

Class of 2023 IMS Fellows

Congratulations to the 2023 Class of IMS Fellows! The designation of IMS Fellow has been a significant honor for over 85 years. Each Fellow has demonstrated distinction in research in statistics or probability or has demonstrated leadership that has profoundly influenced the field.

Rina Foygel Barber

University of Chicago

For groundbreaking contributions to selective inference including the development of the knockoff filter. For groundbreaking contributions to model-free predictive inference including the jackknife+ and adapting conformal inference to covariate shifts. For being a role model in every possible way as a lecturer, communicator, and research adviser to students and younger researchers.

Heather Battey

Imperial College London

For contributions to statistical theory and applied probability, in particular for work on new approaches to well-calibrated high-dimensional and conditional inference, and for work on development of the theoretical foundations of statistical inference.

Pierre C. Bellec

Rutgers University

For fundamental contributions to statistical inference and adaptive estimation with high dimension data, especially to confidence intervals, risk estimation, adaptive parameter tuning and estimator aggregation.

Holger Drees

Hamburg University

For deep and penetrating contributions to the theory and application of extreme value theory from independence to stationary sequences.

Stefano Favaro

University of Torino and Collegio Carlo Alberto

For outstanding and innovative contributions on random discrete distributions, with applications to Bayesian nonparametrics and abundance of unseen species, and pioneering work on differential privacy and statistical fairness.

Yang Feng

New York University

For outstanding contributions to high-dimensional statistics, nonparametric statistics, social network analysis, and statistical machine learning; for statistical software development; and for dedicated service to the profession.

David Gamarnik

Massachusetts Institute of Technology

For contributions to discrete probability, including the theory of random graphs, algorithms and computations, as well as queueing theory.

Wensheng Guo

University of Pennsylvania

For many seminal contributions to statistical theory and methodology in the analysis of high-dimensional correlated data such as those occurred in longitudinal studies, functional modeling, and time series.

Edward L. Ionides

University of Michigan

For distinguished contributions to the theory and practice of statistical inference for partially observed stochastic dynamic systems, with applications including infectious disease transmission.

Keith Knight

University of Toronto

For developing elegant mathematical statistics, including seminal contributions to quantile regression, the theoretical understanding of penalized regression methods, and breakthroughs in time series methods and robust statistics.

Ioannis Kontoyiannis

University of Cambridge

For outstanding contributions to fundamental problems in information theory, and for consistent and important contributions in developing the deep connections of information theory with probability and statistics.

Shuangge Ma

Yale University

For fundamental contributions to methodology and theory of high-dimensional statistics and survival analysis; for outstanding contributions and leadership in the practice of statistics in public health and biomedicine.

Lester Mackey

Microsoft Research

For deep theoretical work in statistical machine learning with impactful applications.

Boaz Nadler

Weizmann Institute of Science

For seminal contributions to multivariate statistical analysis, pattern recognition, diffusion maps, machine learning, signal processing, and neuroscience.

Class of 2023 IMS Fellows continued

Marcel F. Nutz

Columbia University

For outstanding contributions to probability, in particular to optimal transport, stochastic analysis, and mathematical finance, and for dedicated service to the profession.

Oliver Scaillet

University of Geneva and Swiss Finance Institute

For contributions to copula modelling, to tests of independence, goodness-of-fit testing, weak convergence tools for such inference, and to quantitative finance and insurance.

Ali Shojaie

University of Washington

For impactful contributions to statistical machine learning and statistical network analysis, including estimation and inference of directed and undirected graphical models, and high-dimensional time series; for leadership in educational initiatives to train data-savvy biomedical scientists; and for outstanding service to the community.

Scott Antony Sisson

UNSW Sydney

For substantial contributions to research in computational and Bayesian statistics, statistical extreme value theory, and the application of statistical methodology in a range of applied disciplines; for many leadership positions and for significant contributions to professional statistical bodies.

Elizabeth H. Slate

Florida State University

For substantial contributions to the theory of reparameterization, and for research on oral health and the link between selenium and cancer.

Dylan Small

University of Pennsylvania

For profound and influential research contributions to the theory, methodology and application of causal inference, for heroic service to the profession as department chair, editor, associate editor and conference organizer, and for excellence in the teaching, advising and supervision of doctoral students.

Fengzhu Sun

University of Southern California

For outstanding developments and applications of probability and statistics methods to central biological and biomedical problems, in particular, protein interaction networks and metagenomics.

Surya T. Tokdar

Duke University

For intellectual leadership in several fields of Bayesian inference, including posterior consistency, just-right smoothing, and frequentist properties of Bayesian estimates, and for novel models for the analysis of neuroscience data.

Hansheng Wang

Peking University

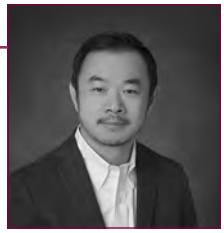
For fundamental contribution to high dimensional data analysis including regularization parameter selection in shrinkage estimation and feature screening for ultrahigh dimensional data, for important contribution to dimension reduction and network data analysis, for his excellent editorial service, and for his excellent service on dissemination of statistical knowledge to business education and application.

Yihong Wu

Yale University

For contributions to both the statistical and computational aspects of high-dimensional and combinatorial statistical problems, mixture models, and empirical Bayes.

Eric Poe Xing



Carnegie Mellon University, Mohamed Bin Zayed University of Artificial Intelligence

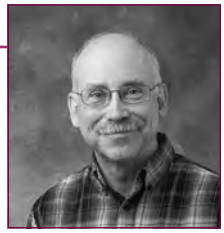
For pioneering contributions to statistics and machine learning research, entrepreneurship in artificial intelligence, and leadership in AI education.

Kai Zhang

University of North Carolina at Chapel Hill

For novel contributions to post-selection inference, high-dimensional inference, and nonparametric inference.

Dale L. Zimmerman



University of Iowa

For the development of fundamental theory and methodology associated with complex spatial, spatiotemporal, and longitudinal data and applications to optimal spatial sampling, health data geoprivacy, and environmental statistics, and for outstanding editorial service to the profession.

President's Corner

IMS President Peter Bühlmann comments on the IMS Fellowship elections, and our new class of Fellows, announced on the preceding pages:

I would like to extend my warmest congratulations to the newly appointed IMS Fellows for their outstanding achievements. I am truly delighted to see that IMS has 27 new and stellar Fellows who will undoubtedly continue to shape the future of statistics and probability.

While we celebrate the accomplishments of the newly appointed Fellows, which is the most important thing, we must acknowledge that the class of 2023 IMS Fellows lacks diversity in certain ways. I would like to provide some numbers and facts to bring attention to this matter, also recognizing that this is only the beginning of the conversation. I invite you to read an upcoming article in the October/November issue of the *IMS Bulletin*, which will explore ways to increase diversity in the nomination pools for IMS Fellows and other IMS Awards.

This year, 55 people were nominated for IMS Fellowship. Among them were seven female nominees. The classification into the different fields was as follows: 45 in statistics, two in probability and eight cross-disciplinary (the nominator could indicate one or more research areas out of these four categories: statistical theory and methods / applied statistics / probability theory and methods / applied probability). There was no female nominee in probability nor in the cross-disciplinary field, all seven are working in statistics. In terms of geographical spread: seven in Europe and the Middle East (Germany, Greece, Israel, Italy, Switzerland, UK); three from Australia; seven from Asia (China, Hong Kong, India, Singapore); and 38 from North America (Canada, USA).

Out of the 55 nominations, 27 were selected as IMS Fellows: three women (all from statistics); 21 working in statistics, one in probability and five in a cross-disciplinary field. In terms of geographical regions where the Fellows work and live: six from Europe and the Middle East, one from Australia, one from China, and the remaining 19 from North America.

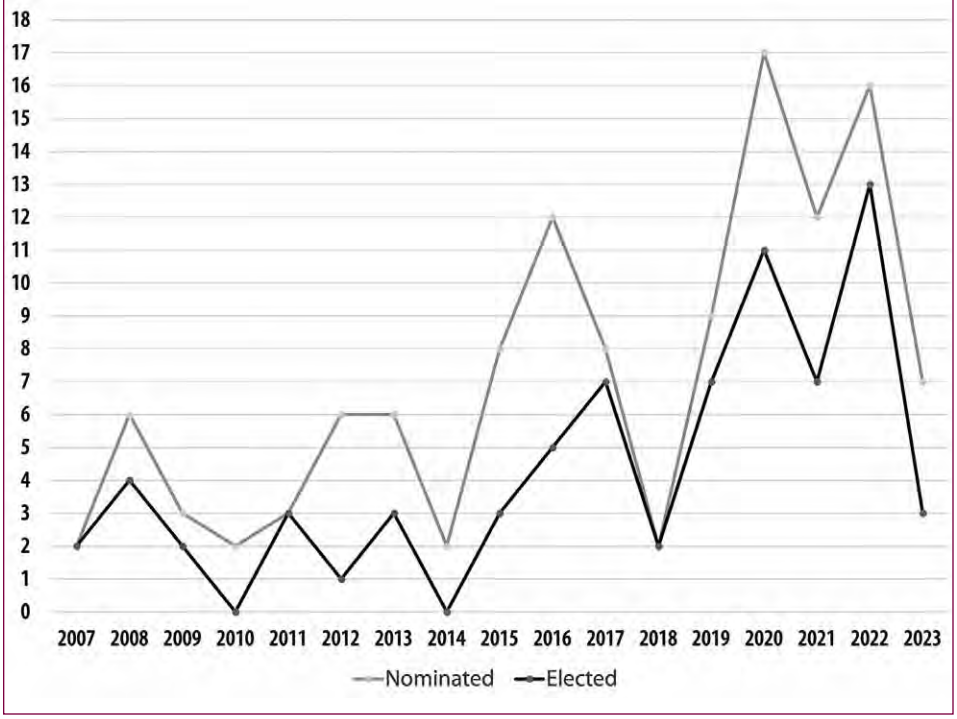
We have data from previous years on the percentage of nominees who identify as female. The following quantiles represent the range for the years 2007–2023: minimum (4.2% in 2007), lower quartile (7.3%), median (12.8%), upper quartile (16%), and maximum (24% in 2016). For 2023, the percentage is 12.7%. Furthermore, the figure below reports the numbers of nominated and elected Fellows who identify as female.

As a reference, the 2021 Survey on the IMS Membership reports the following numbers among the respondents: approximately 20% females; 64% work exclusively in statistics, 11% exclusively in probability and 25% cross-disciplinary (the distinction between the different categories is not sharp); 3.3% from Africa, 21.4% Asia, 16.5% Europe, 55.2% North America, 2.1% Oceania, 1.4% South America. More precise information is available here: https://imstat.org/wp-content/uploads/2021/06/Bulletin50_5-Membership-survey-report-and-introduction.pdf.

While I won't provide interpretations of these numbers, I do believe it's crucial to emphasize the need for diversity in award and honor nomination pools. This is key to maintaining the high level of prestige associated with these distinctions, as well as ensuring the well-being of IMS. Stay tuned for the upcoming October/November issue of the *IMS Bulletin,* where we will share our thoughts on this important topic.

Once again, congratulations to the new IMS Fellows!

Figure 1: Number of female nominees and those elected Fellow, 2007–2023



Written by Witten: Where my ladies at?

Daniela Witten writes: This *Bulletin* issue announces the Class of 2023 IMS Fellows. First and foremost: congratulations to each and every new Fellow! This is an incredible career accomplishment. You make me optimistic about the future of our field.

However, today I'd like to discuss the fact that *only three of the 27 new Fellows are women*, within the context of a broader conversation about gender among IMS members. These two topics are inextricably linked, because: (i) to be eligible for IMS fellowship, a candidate must have been a member of IMS for the past two years; and (ii) IMS members comprise the set of active participants in the IMS community, and thus the set under consideration for IMS fellowship.

Over the years, I have talked with a number of accomplished statisticians about some of the ideas in this column. Almost without exception, they have been open to what I have to say (and, in many cases, in enthusiastic agreement). So, if you already agree with the points I make in this column, then I'm so glad to have you on board. If you do not currently agree with me on these issues, but are curious about my perspective, then thank you for reading my column, and I hope to give you some food for thought!

I also want to emphasize that the statisticians who I know individually (and almost certainly those who I do not) are wonderful people. Nobody *"wants"* IMS to have a gender problem. However, there are systemic issues at play that go far beyond individual action or intent. The goal of this column is to point out some of these, and to start a conversation about how IMS can address them.

Q1: ***Why should I care about the representation of women within IMS?***

A1: There are a number of reasons. Here are two:

(i) *Creating an inclusive professional society is the "right" thing to do.* I believe that women are no less talented (or interested) in statistics/probability than men; however, they often face societal/cultural barriers. By breaking down these barriers, we can enable women to have fair access to the fulfilling career opportunities available in statistics/probability.

(ii) *A substantial body of research shows that* diverse teams lead to better results. Thus, the field of statistics/probability—and the quality of research—will directly benefit from greater diversity.

Why does this column focus exclusively on women, as opposed to other marginalized genders, or other types of diversity unrelated to gender? See Q11.

Editor's note: Underlined text in this article indicates references, see the online version: https://imstat.org/2023/05/09/written-by-witten-where-my-ladies-at/

Q2: ***Before we talk about IMS awards, we should talk about IMS membership. Does the IMS membership have a gender problem?***

A2: According to the 2021 IMS Membership Survey, the overall membership of IMS is around 20% women.

What "should" the number be? We can try to triangulate it. In the US in 2014, according to the 2017 NSF *Women, Minorities, and Persons with Disabilities in Science and Engineering* Digest, 42% of bachelor's degree recipients in mathematics or statistics were women. For master's degrees, the number was 43%. In the US in 2021, 38% of doctoral degrees in statistics were awarded to women. This number was well above 40% (and as high as 45%!) in 2005–2011, the period when many of this year's IMS fellows completed their PhDs.

The American Statistical Association (ASA), which has worked hard to increase diversity in statistics for a number of years, has a far greater proportion of women Fellows than does IMS: approximately 35% of ASA members are women (see https://magazine.amstat.org/blog/2020/10/01/asa-fellows-analysis/).

Now, you might argue that these numbers aren't the right baseline: for instance, perhaps you believe that women are less likely than men to pursue mathematical statistics and probability, as opposed to (say) applied statistics. *That might be part of the story, but it's also a cop out.* A lot of factors contribute to the fact that few women become mathematical statisticians and probabilists, and to the fact that few women join IMS. Instead of shifting the blame from one factor to another, let's instead work together to address the entirety of factors.

I think that part of the reason that there are so few women in IMS is because, well, there are so few women in IMS. *Representation matters*, and *it's hard to be what you can't see*. If we want more women to become involved in IMS (and I hope we do!!) then we need to play an active role in making that a reality. Why would we expect someone to pay a $105 USD annual membership fee to support an organization of people that don't look like them and that don't make them feel included?

There are a number of ways to make IMS a more appealing professional organization for women; one way is by having more women award recipients. More on this later.

Q3: ***Won't the demographics of IMS naturally change over time, without our intervention?***

A3: Nope. Problems like this get solved through years of hard work and tireless advocacy, not by twiddling our thumbs while waiting for time to pass. The proportion of women who earned bachelor's and master's degrees in math or stat in the US declined

substantially from 2004 to 2014, as did the proportion of women earning doctorates in statistics in the past 15 years. Among IMS members below age 30 in 2021, the proportion of women remains very low, at ~25%.

Q4: *This year, only 3 of 27 IMS Fellows are women. Is this a fluke?*

A4: Table 1 displays the gender breakdown of IMS awards over the past few years. The percentage of women recipients hovers around 20%. So 2023 was a particularly "bad" year in terms of women receiving IMS fellowships; but the "typical" percentage is still quite low. As a point of comparison, typically around 30% of new ASA fellows are women; this number was 48% in 2021.

Table 1. Major IMS awards with more than four recipients to date, as well as total number of recipients, and number of women recipients.

Award	Total Recipients	# Women	% Women
Larry Brown PhD Student Award	10	2	20%
Tweedie New Researcher Award	18	4	22.2%
Wald Lecture [since 2010]	15	4	26.7%
Blackwell Lecture	4	0	0%
Le Cam Lecture	7	1	14.3%
Neyman Lecture [since 2000]	7	1	14.3%
Rietz Lecture [since 2000]	8	1	12.5%
Harry Carver Medal	20	5	25.0%
Medallion Lecture	120	31	25.8%
IMS Fellow [since 2007]	375	73	19.5%

[Many thanks to IMS staff for assembling this data; however, I take full responsibility for any errors due to failure to double-check.]

Q5: *So, circling back: given that 20% of IMS members are women, is it actually a problem that only 20% of IMS award recipients are women?*

A5: Yes, it is. *Representation matters*, and *it's hard to be what you can't see*. If we want more women in the field, then we should make sure women are represented in IMS: awards are a good place to start.

Furthermore, the total number of women members in IMS is smaller than it should be (see Q2). The women who do choose to join IMS (as opposed to self-selecting out of IMS) are particularly qualified for IMS awards, and thus I believe that they should win awards at a higher rate.

Q6: *I think the IMS award process is objective and unbiased. Are you saying it's not?!*

A6: I think that everyone's intentions are good! However, there is extensive evidence that, across fields, "the scientific efforts and achievements of women do not receive the same recognition as do those of men". This phenomenon is known as the "Matilda Effect". It means that despite our best efforts at objectivity, *in reality we are not that objective.*

Furthermore, many women face gender-specific obstacles to careers in statistics and probability (such as cultural/societal expectations, subtle and overt sexism, difficulty finding senior faculty mentors/sponsors, etc.). And so I believe that the "average" woman who has achieved a given seemingly "objective" marker of success (e.g., publication in a top journal) has, in fact, accomplished more than the "average" man who has achieved this same marker. [Obviously, there are (many!) exceptions to any rule, and furthermore these comments absolutely apply to other groups besides women (see Q11).] *So, if we want IMS awards to go to the most meritorious people, then we should give awards to more women.*

To make my meaning crystal clear: *I believe that women deserve to win more than 20% of IMS awards, and I hope that women will win more than 20% of IMS awards in 2024 and beyond.*

Q7: *Don't look at me!! I always do my best to support women!!*

A7: Yes! You do! And I really love that about you! You invite women to give talks, write glowing tenure letters for them, treat them extremely fairly whenever you serve on a hiring committee or award committee, etc etc. On behalf of all of the women: thank you!

But, the problems that I'm describing are systemic. Again, see my answers Q2 and Q6. This is not about anyone having ill intent (again, I think almost all of us operate with the best of intent); it's about a well-documented sociological phenomenon.

Q8: *I invited five women to speak at event XYZ, and they all said "no". What gives??!*

A8: First of all, thank you for being an ally! I can see why this is frustrating. Your experience is not unique, I'm afraid. I think of this as the "collective Rolodex" issue.

Here's a little game: think of the "top" 10 women in statistics/probability (whatever the word "top" means to you). Then ask a colleague to do the same. I bet that there's a lot of overlap between your two lists!

We have a tendency to always think of the same very small set of women when issuing invitations to give talks, apply for jobs, serve on advisory panels, etc. Then we feel frustrated when those women decline (because they have already received countless such invitations!).

The solution is not to stop trying: it's to dig a bit deeper into our collective Rolodex. More on this in my answer to Q9 below.

Q9: ***So, what can we do to fix this?***

A9: Thank you for asking! Of course, our individual actions are important. But we also need a top-down approach. If the IMS leadership views (a lack of) gender diversity as a problem, then it can work to solve it. Here's one concrete suggestion.

For most (if not all) IMS awards, nominations are submitted to an award committee, which then selects among the nominees. If the list of nominees does not contain (enough) women, then women will not win the award.

So my suggestion is as follows: *IMS should encourage (or even require) award committees to ensure—before review of nominations—that the nomination pool contains 50% women.* This might require award committee members to actively solicit nominations of women: this is okay, and in fact this is often how award committees work already! (I have multiple times served on award committees where the committee members sought out additional nominations.) Then, once a diverse pool of nominees has been obtained, the committee can do its work, without explicit regard to gender. This will guarantee that the most deserving candidates win the award — while also ensuring that women are given a fair shake.

(In fact, the system that I'm describing is already in use at many universities in the US: often universities will not allow a faculty search to proceed without a sufficient level of diversity on the "long list" or "short list" of candidates. Once a diverse slate of candidates has been selected, the search proceeds without explicit regard to diversity considerations.)

I emphasize that this suggestion *will not reduce the quality of IMS award recipients*, nor will it change the rubric by which nominees are evaluated: it will simply increase the pool of nominees to include more women.

This suggestion will also help address the collective Rolodex issue described in my answer to Q8.

Q10: ***Can you close this column with a touching anecdote about the late Ingram Olkin?***

A10: I sure can! During a lovely dinner in around 2012, Ingram shared an interesting perspective on why qualified women often are not hired into faculty positions. He said that a typical faculty search might shortlist six candidates, including one woman. However, when the committee meets to make a final decision on hiring, the discussion typically proceeds like this:

Committee member 1: The woman is the best at X, but she is not as good at A as man #1.

Committee member 2: Yes, she is the best at X, but she is not as good at B as man #2.

Committee member 3: I agree. Also, she is not as good at C as man #3.

Committee member 4: Also, man #4 is better at D and man #5 is better at E.

Committee member 1: OK, so it sounds like we shouldn't hire her, because while she is the best at X, she is not the best at A, B, C, D, or E.

What happened here? Each individual committee member's statements were true, and well-intentioned: but the woman was compared to an imaginary man who combined the best qualities of five real men.

How can we fix this problem? By *having more women on the short list* (see Q9). This will make it easier to avoid the (very natural) tendency to make a "man-versus-woman" decision before deciding who to hire.

It meant a lot to me to hear Ingram—who must have been almost 90 at the time—articulate these points so clearly.

Q11: ***We're almost done here, but there's time for one final question. Why does this column discuss only gender?***

A11: Great question. There absolutely are crucially important conversations to be had about other marginalized groups within IMS (e.g. race, ethnicity, other genders, sexual orientation). However, as far as I know, *IMS does not collect the relevant data*: for instance, its annual membership survey does not ask about race. I understand that the situation is delicate: there are constraints on the questions that IMS, as an international organization, can ask.

Nonetheless, I believe that we cannot improve that which we cannot measure. In the future, I hope that the IMS membership survey will include questions on race, and other demographics of interest, in countries where this is allowed. Perhaps the exact set of questions to be asked should vary by geographic region. Of course, all country-specific laws should be followed. (And, as is the case for other questions in the survey, members should be given the option not to answer.)

I look forward to hearing how IMS will address these important issues, and I hope that they will put together a plan in time for the 2024 award cycle.

What do you think? Post a comment at https://imstat.org/2023/05/09/written-by-witten-where-my-ladies-at/

Obituary: Krishna B. Athreya

1939–2023

Krishna B. Athreya, who was an IMS Fellow, a Fellow of the Indian Academy of Sciences, and Distinguished Professor Emeritus of Mathematics and Statistics at Iowa State University, died at his home in Ames, Iowa, on March 24, 2023. Rick Durrett reflects on Professor Athreya's mathematical legacy.

Krishna Athreya, or KBA

As I write this, Krishna Athreya passed away about a week ago. While the end of a person's life is a sad time, it also provides an opportunity to reflect on the past. The first memory that came to my mind was of sitting in Sid Resnick's office in the Stanford Statistics department in 1974 (or 1975.) A group of us got together once a week to make our way through the new book on *Branching Processes* by Athreya and Peter Ney. It was a welcome modernization of Harris's 1963 book that started the subject. There were crisp proofs of the basic facts about Galton–Watson processes, Markov branching processes (with exponential lifetimes), the age-dependent case (general lifetimes), and multi-type branching processes. Over my career I have loaned this book to my graduate students many times to help them learn the subject. Remarkably I still have it—now a little worse for wear.

Number two on my list of Athreya's greatest hits is "A new approach to the limit theory of recurrent Markov chains," which appeared in the *Transactions of the American Math Society*, a paper that was written with Peter Ney in 1978. Again this is a contribution to an area founded by Ted Harris. While Markov chains on discrete state space are well understood, on a general state space numerous pathologies arise. Harris's genius was to identify a class of these chains that have a tractable theory and cover a number of examples.

There is an elegant analytical theory described in the book by Revuz. However in 1978, several researchers, including Esa Nummelin who later developed a book based on this approach, had the same idea at the same time. I remember attending a session of talks at the 1978 meeting on Stochastic Processes and their Applications and hearing three talks on the topic—this was devastating for a PhD student in the audience who was working on this for his thesis.

The idea is simple but brilliant: a Harris chain can be modified to have one state that is hit with positive probability starting from any state, and having one such state is enough to carry out all the usual theory for the discrete case. Given this hint I am sure you can work out the details for yourself. (I was so excited by the idea that I put it in the Markov chains chapter of my graduate textbook.)

Turning to a more traditional narrative: Krishna Athreya received his PhD in 1967 from Stanford where he worked with Sam Karlin, a legendary probabilist with an impressive pedigree: academic son of Bochner, who was a grandson of Hilbert, and the mentor for 44 students including Tom Liggett and Charles Stone among many others. Athreya's thesis topic was *Multi-type Continuous Time Markov Branching Processes and Some Classical Urn Schemes.* Soon after Athreya got his degree, he and Karlin worked on Branching processes in random environments. Two papers were published in the *Annals of Mathematical Statistics* in 1971 (the *Annals of Probability,* which began in 1973, did not yet exist).

These two papers, like many in Athreya's top 20 most cited on MathSciNet, contain a number of ideas that have not been fully explored. An example is the work with his PhD student Jack Dai on random logistic maps. Last but not least, I would like to mention his 1994 paper on large deviations for branching processes, which contains material that working probabilists should know.

Athreya has left an impressive mathematical legacy that will enrich your life and research if you have the time to read it. It is sad that there will be no more work coming from him, but I hope others who read this will be inspired to continue his work.

Written by Rick Durrett, Duke University

An online obituary can be viewed at https://www.adamssoderstrum.com/obituaries/Krishna-B-Athreya?obId=27573807#/obituaryInfo

Obituary: Damodar N. Shanbhag

1937–2022

Damodar Nagesh Shanbhag passed away at his residence in Sheffield, UK, on December 13, 2022. He was 85 years old.

Dr. Shanbhag was born in 1937, in the state of Karnataka, India to Nagesh G. and Rama Shanbhag. He earned his Master's degree in Statistics from Karnataka University securing a top ranking in 1960, and continued to successfully defend his doctoral thesis in 1967 specializing in Queuing Theory. After a short stint as a lecturer in Poona University, India, Dr. Shanbhag joined the University of Western Australia as a senior lecturer in 1968. He moved to the University of Sheffield, UK, in 1971 and remained there until his retirement in 1997.

He leaves behind his loving wife, Vibha, three devoted children (Sharayu, Sandeep, and Anita), seven grandchildren, three siblings and several extended family members.

Dr. Shanbhag was consumed by his passion in the research area of structural properties and identifiability issues in probability distributions and stochastic processes within the general area of Applied Probability and Theoretical Statistics. Several results were enshrined under his name: Shanbhag's Condition; Shanbhag's Lemma; the Lau–Rao–Shanbhag Theorems; the Shanbhag Hypothesis; the Shanbhag Principle; the Seth–Shanbhag–Morris Theorems. His path-breaking paper on the Rao–Rubin characterization of the Poisson distribution published in 1977 led to several collaborative research efforts, especially and prolifically with Professor C. R. Rao. His research work with Professor Rao culminated in the research monograph, *Choquet–Deny Type Functional Equations with Applications to Stochastic Models*, Wiley, 1994. Functional equations do arise in Applied Probability and their monograph is a veritable trove in solving such equations.

Dr. Shanbhag was a very conscientious, considerate, and meticulous advisor, mentor, and guru. He guided 22 PhD students over his academic career and many more in the role of an advisor. He authored close to one hundred research papers. Even after his retirement, he continued researching, with his most recent paper published in 2021. He also edited books on *Stochastic Processes: Theory and Methods* (Vol 19) and *Modelling and Simulations* (Vol 21) jointly with C.R. Rao under the *Handbook of Statistics Series* by Elsevier.

Dr. Shanbhag was a very honest and humble man, devoted to his family and friends. His collaborative sessions with fellow researchers, are riveting and inspiring. He will be sorely missed. His legacy will surely continue for generations to come, through his students, collaborators and family.

Written by M.B. Rao,
Department of Biomedical Engineering, University of Cincinnati

Nominations for IMS Named and Medallion Awards & Lectures

The IMS Committee on Special Lectures is accepting nominations for IMS Named and Medallion awards and lectures. You are invited to nominate:

the 2025 & 2026 Wald Award & Lectures
the 2025 Neyman Award & Lecture
the 2025 Rietz Award & Lecture
the 2025 Wahba Award & Lecture
the 2026 Medallion Award & Lectures (eight people per year).

You can read more information on these awards at https://imstat.org/ims-special-lectures/.

For details, please visit https://imstat.org/ims-special-lectures/nominations-for-ims-named-and-medallion-lectures/. When you are ready, you may nominate using the form on this webpage. For the nomination you will need a nomination letter of half a page, together with a list of five of the nominee's most relevant publications, and a URL where these publications are accessible. The deadline for these nominations is **October 1, 2023**.

Recent papers: supported and affiliated journals

Annales de l'Institut Henri Poincaré (B), Probabilités et Statistiques

The Probability and Statistics section of the *Annales de l'Institut Henri Poincaré* is an international journal that publishes high-quality research papers. The journal, supported by the IMS, deals with all aspects of modern probability theory and mathematical statistics, and their applications. The editors are Giambattista Giacomin and Yueyun Hu. Access papers at **https://projecteuclid.org/aihp**

Volume 59, Number 2, May 2023

Observational Studies

Observational Studies, an IMS affiliated journal, is an open-access, peer-reviewed journal that publishes manuscripts on all aspects of observational studies, including study protocols, methodologies, descriptions of data sets, software and analyses of observational studies. The editor is Nandita Mitra. Read it at **http://obs.pennpress.org/**

March 2023 Volume 9.2

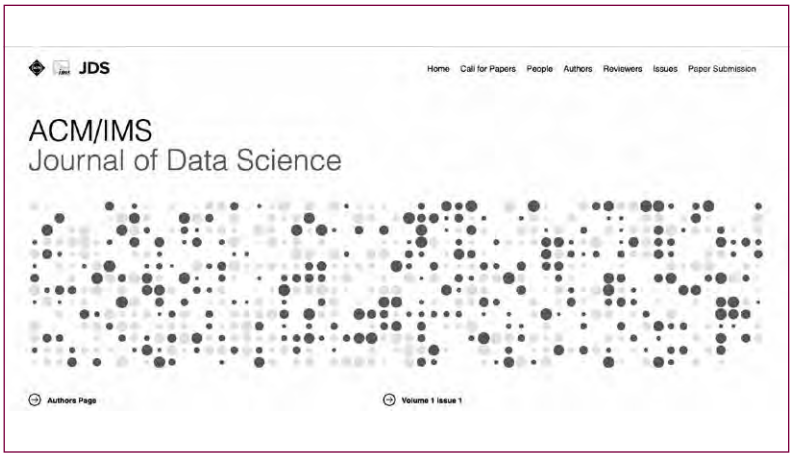
New ACM–IMS *Journal of Data Science*

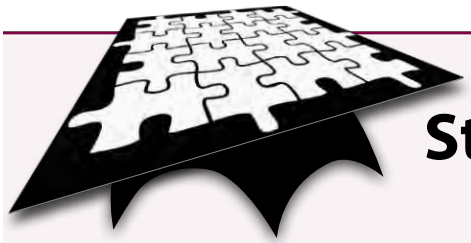
The ACM–IMS *Journal of Data Science* (*JDS*) is a new joint journal of the Association of Computing Machinery (ACM) and the IMS, publishing high-impact research from all areas of data science, across foundations, applications and systems. The scope of the journal is multi-disciplinary and broad, spanning statistics, machine learning, computer systems, and the societal implications of data science. *JDS* accepts original papers as well as novel surveys that summarize and organize critical subject areas.

The inaugural issue of the new journal is online now. Volume 1, issue 1 of *JDS* contains papers on "Batched Neural Bandits" by Quanquan Gu, Amin Karbasi, Khashayar Khosravi, Vahab Mirrokni, and Dongruo Zhou; "Identification and semiparametric efficiency theory of non-ignorable missing data with a shadow variable" by Wang Miao, Lan Liu, Yilin Li, Eric Tchetgen Tchetgen, and Zhi Geng; "Record Fusion via Inference and Data Augmentation" by Alireza Heidari, George Michalopoulos, Shrinu Kushagra, Ihab F. Ilyas, and Theodoros Rekatsinas; "Optimistic Rates: A Unifying Theory for Interpolation Learning and Regularization in Linear Regression" by Lijia Zhou, Frederic Koehler, Danica J. Sutherland, and Nathan Srebro; "DNBP: Differentiable Nonparametric Belief Propagation" by Anthony Opipari, Jana Pavlasek, Chao Chen, Shoutian Wang, Karthik Desingh, and Odest Chadwicke Jenkins; and "Data Management for ML-based Analytics and Beyond" by Daniel Kang, John Guibas, Peter Bailis, Tatsunori Hashimoto, Yi Sun, and Matei Zaharia.

The Editors-in-Chief of *JDS* are Jelena Bradic, Stratos Idreos, and John Lafferty.

Read the papers, and find out how to submit your paper to the journal, at http://jds.acm.org/





Student Puzzle Corner 45

Student Puzzle Editor Anirban DasGupta poses another two problems, and says, "Once again, we propose one problem on statistics and one on probability. I think you will find both problems to be new to you and interesting. If you are not able to answer either problem analytically, send us meaningful computational answers, and we will look at them too." Send us your solution, to either or both.

Puzzle 45.1. Suppose $X_1, X_2, \ldots$ is a sequence of i.i.d. standard normal variables. For any given $n \geq 1$, define $R_n = \frac{\max\{X_1^2, \ldots, X_n^2\}}{X_1^2 + \ldots + X_n^2}$. Let also $\pi(n)$ denote the usual *prime counting function*, i.e., $\pi(n)$ denotes the number of prime numbers $\leq n$. Prove that $\frac{R_n}{2/\pi(n)} \stackrel{a.s.}{\to} 1$.

Puzzle 45.2. This interesting question was first raised by Brad Efron. How far from a t-confidence interval is the true value of a population mean when the t-interval misses the true value?

Formally, assume below that we have i.i.d. normal variables with mean μ and variance σ^2, and let for given $n \geq 2$, C_n denote the usual $100(1-\alpha)\%$ t-confidence interval for μ. Derive an asymptotic approximation for $E(\text{dist}(\mu, C_n) \mid \mu \notin C_n)$, where $\text{dist}(\mu, C_n)$ stands for the (Euclidean) distance between μ and the interval C_n.

Deadline: July 1, 2023

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 to either or both of these puzzles, 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 44

Well done to **Soham Bonnerjee** (University of Chicago) who sent a correct solution to 44.2 below. Anirban DasGupta explains:

Puzzle 44.1 (see the reminder, right) This is a special case of an extremely interesting problem known as Moser's worm problem. In 1966, Leo Moser asked what is the minimal area of a geometric region that can enclose any closed curve of a given length L in the plane? To my knowledge, in this generality, the problem remains open. If we restrict our region to be a circle, then it is known that a circle of diameter $\frac{L}{2}$ suffices (see Harold Johnson's 1974 article in the *Proceedings of the American Mathematical Society*). We can apply this sufficient condition to $L = 8$ in our problem.

Puzzle 44.2 Actually, the answers to the parts of this problem have nothing to do with the sequence of observations being i.i.d. from a standard Cauchy. Let F be the CDF of a real valued random variable such that $F(x)$ is a continuous function on the real line and $F(-x) = 1 - F(x)$ for all real x. Define a function $h(x, y) = I_{x+y>0}$. We are interested in various asymptotic properties of $T_n = \frac{1}{\binom{n}{2}} \sum_{1 \leq i < j \leq n} h(X_i, X_j)$. Although we can solve this problem directly by using calculations for m-dependent sequences, it is the best to use Hoeffding's theory of U-statistics. The statistic we are interested in is a U-statistic of order $m = 2$. Due to the symmetry and continuity of our F, it follows that $T_n \stackrel{P}{\to} \frac{1}{2}$. Also, by considering the number of overlaps in two pairs of indices (i, j), (k, l), one can calculate the variance of T_n exactly. It then follows that $a_n (T_n - c) \stackrel{\mathcal{L}}{\to} G$, with $a_n = \sqrt{n}$, $c = \frac{1}{2}$, and G the normal distribution with mean 0 and variance $\frac{1}{3}$.

Puzzle 44.1: As you're making coffee in your kitchen, you notice that a huge centipede has curled itself up on the floor and its head and tail are joined together. Petrified by it, you take a coffee mug with a circular mouth and try to cover the centipede. Assume that the centipede is eight inches long. A coffee mug of what internal diameter can cover the centipede completely? Give the smallest diameter suggested by your algorithm. Send your algorithm with your answer.

Puzzle 44.2: Suppose $X_1, X_2, \ldots$ are i.i.d. standard Cauchy. For $n \geq 2$, denote by T_n the proportion of pairs $i < j \leq n$ such that $X_i + X_j \geq 0$.

(i) Does T_n converge in probability to some constant c? If so, to what?

(ii) Does there exist a sequence $\{a_n\}$ and a nontrivial distribution G such that $a_n(T_n - c) \stackrel{\mathcal{L}}{\Rightarrow} G$? If so, identify $\{a_n\}$ and G.

IMS Lecture Previews

Sylvie Méléard: Medallion Lecture

Sylvie Méléard is Professor at Ecole polytechnique, France, and senior Fellow of the Institut Universitaire de France. She is a specialist in stochastic processes, measure-valued processes, quasi-stationary distributions and is interested in their applications in biology, particularly in evolutionary ecology, bacterial biology and hematology. She is the head of the French MMB (Mathematical Modeling and Biodiversity) network between biologists and mathematicians, and PI of the SINGER project (Stochastic dynamics of single cells: growth, emergence and resistance). She gave an invited lecture at ICM2022. She was Editor-in-Chief of the journal *Stochastic Processes and their Applications* from 2018 to 2021 and Professor at University Paris Nanterre, France, from 1992 to 2006.

This Medallion Lecture will be given at the **INFORMS/APS meeting** in Nancy, France, June 28–30.

Multiscale eco-evolutionary models: from individuals to populations

Since Darwin's revolutionary work on evolution and natural selection, many mathematicians have worked on modeling his theories. Different schools of thought have developed, involving different classes of mathematical objects. Ecological models of structured population dynamics usually rely on deterministic models in large populations, such as dynamical systems (as the famous Lotka–Volterra system) and partial differential equations. Population genetics are more interested in random fluctuations of gene frequencies in small populations (like in the Wright–Fisher model) and therefore make extensive use of probabilistic tools. A few decades ago, eco-evolutionary models emerged, seeking to link these two approaches. Our work is placed in this framework. Our point of view consists in focusing on stochastic individual behaviors, taking into account demographic parameters (birth and death rates), evolutionary parameters (mutations, gene transfer), and ecological parameters (interactions between individuals), all these parameters depending on the genetic or phenotypic characteristics of the individual. This point of view is strongly reinforced by the ability of biologists to obtain more and more individual data, for example, for bacteria, thanks to single cell microscopes or microfluidic techniques. There are three main sources of randomness in eco-evolutionary mechanisms which happen at different time and size scales: at the molecular level (errors in DNA replication or genetic information exchanges), at the individual level (division time, life span, contacts, access to resources), and at a macroscopic level (environmental variations). Mathematically, it is very exciting that all the parameters we have mentioned have their own scales, which can be different according to the species considered and also can vary according to the environment. Depending on these scales, the mathematical models and the associated mathematical questions can be of different nature and challenging and open new fields of investigation.

We consider bacteria or cell populations. The ability of an individual to survive or divide depends on phenotypic or genetic parameters whose quantitative expression (real or vectorial) is called a trait. The evolution of the trait distribution results from different main mechanisms. The heredity is the vertical transmission of the ancestral trait to offspring, except when a mutation occurs. The mutations generate trait variability in the population. Although their reproduction is asexual, bacteria or cells can horizontally exchange genetic information during their life. The selection process takes place at two levels. The variability in traits allows an individual with a higher probability of survival or a better ability to reproduce to create a subpopulation of offspring that will invade the population (genetic selection). In addition, selection also favors those individuals best able to survive in competition with others (ecological selection). Horizontal gene transfer is obtained by direct contact between cells, either by the transfer of small parts of chromosomal DNA or by the transfer of plasmids, small circular double-stranded DNA structures which can be very costly for the cell in terms of energy used. Gene transfer plays an essential role in the evolution, maintenance, transmission of virulence and antibiotic resistance.

One is faced with the fundamental question: how to describe and quantify the successive invasions of favorable mutants? The individual behaviors are described by the mean of a stochastic measure-valued process. We study different long time asymptotic behaviors depending on the assumptions on mutation size and frequency and on horizontal transmission rate. In some cases, simulations indicate that these models should exhibit surprising asymptotic behaviors such as cyclic behaviors. We explore these behaviors on a simple model where population and time sizes are on a log-scale. Explicit criteria are given to characterize the possible asymptotic behaviors. The impact of the time and size scales on macroscopic approximations is also investigated, leading to Hamilton-Jacobi equations.

Ingrid Van Keilegom: Medallion Lecture

Ingrid Van Keilegom received her PhD in Statistics in 1998 from Limburgs Universitair Centrum (now called Hasselt University) in Belgium. She is, since 2016, professor of statistics at KU Leuven. Previously she was a professor at Pennsylvania State University, Eindhoven University of Technology (Netherlands), and UCLouvain in Belgium, where she still has a part-time position today. Ingrid's research interests include survival analysis (cure models, dependent censoring, instrumental regression with censored data), semi- and nonparametric regression, measurement error problems, quantile regression, among others. Ingrid received an honorary doctorate from the University of A Coruña (Spain) in 2022; she is an elected member of the Royal Flemish Academy of Belgium for Science and the Arts since 2021; and she is a Fellow of the American Statistical Association (2013) and of the IMS (2008). She has been joint editor of the *Journal of the Royal Statistical Society–Series B* (2012–15), and is currently Associate Editor of the *Journal of the American Statistical Association*, the *Annals of Statistics*, *Biometrika*, the *Annual Review of Statistics and Its Application*, and the *Electronic Journal of Statistics*. She has been holder of a Starting Grant and an Advanced Grant of the European Research Council.

This Medallion Lecture will be given at the **Joint Statistical Meetings in Toronto**, August 5–10, 2023.

Copula-based Cox proportional hazards model for dependent censoring

In survival analysis it is commonly assumed that the time to the event of interest (survival time) and the right censoring time are independent. This is often satisfied in practice, for example, in the case of administrative censoring or when censoring happens because of reasons that are unrelated to the event of interest. There are however numerous situations in practice in which this assumption might be violated. Consider, for example, the case where the patient leaves the study for reasons relating to their health, or where they die of another related disease. In such cases it is important to take the dependence between the survival time (T) and censoring time (C) into account in the model.

The seminal paper by Tsiatis (1975) shows that the bivariate distribution of T and C is not identifiable in a completely nonparametric setting. Parametric or semiparametric assumptions are therefore necessary to make the model identifiable. In this talk we will start by reviewing the existing literature on this topic, both in the case with and without covariates. A popular approach is to work with copulas, which allows one to model the marginal laws of T and C separately from the relation between T and C. Most papers in the literature assume however that the copula is fully known, which is often unrealistic in practice. The approaches in these papers can be used for sensitivity analyses, but are often not useful for point estimation. The assumption of a known copula can however be overcome in many cases.

We will discuss first the case without covariates, for which we develop a fully parametric copula-based model, that is identifiable under certain conditions on the copula and the margins. These conditions are then checked for a wide range of common copulas and marginals.

Next, we consider how covariates can be incorporated in the model, by making parametric or semiparametric assumptions on the copula and/or the margins. We develop sufficient conditions under which the model is identifiable and propose an estimation procedure. The weak convergence of the estimated model components is established, a goodness-of-fit test for the model is suggested, and a bootstrap procedure is proposed to do inference.

Finally, adaptations to cure models (with a proportion of infinite survival times), quantile regression, situations with both independent and dependent censoring, and competing risks are also discussed.

Related models where dependent censoring occurs (such as measurement error models with censored data, dynamic covariates subject to censoring, etc.) are also given some attention, and we finish the presentation with some ideas for future research on this topic.

Runze Li: Medallion Lecture

Runze Li received his PhD in Statistics from the University of North Carolina at Chapel Hill in 2000. He currently is the Eberly Family Chair in Statistics and Professor of Public Health Sciences in the Department of Statistics, Pennsylvania State University at University Park. Runze's research interests include theory and methodology development in variable selection, feature screening, robust statistics, nonparametric and semiparametric regression. His interdisciplinary research aims to promote the better use of statistics in social behavioral research, neural science research and climate studies. He served as Co-Editor of *Annals of Statistics* from 2013–15. Runze Li is Fellow of the American Association for the Advancement of Science, the ASA, and the IMS. Recent honors include the 2017 ICSA Distinguished Achievement Award; the Faculty Research Recognition Awards for Outstanding Collaborative Research, College of Medicine, Penn State University in 2018; and the Distinguished Mentoring Award, Eberly College of Science, Penn State University in 2023. This Medallion Lecture will be given at **JSM Toronto**, August 5–10, 2023.

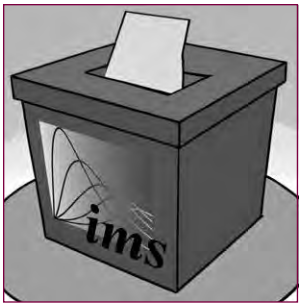
Feature screening for ultrahigh dimensional data: Methods and Applications

Analysis of ultrahigh-dimensional data plays critical roles in big data analysis. Feature screening aims to quickly reduce the dimensionality by filtering out irrelevant variables as many as possible without excluding out important variables. Thus, feature screening is an important statistical analytic tool for ultrahigh data. There have been many developments on this topic. In this lecture, I will present general strategy and some applications of feature screening.

My lecture will start with connections between sure independence screening and t-test for high-dimensional two-sample mean problem with false discovery rate control. I then present an overview on marginal screening procedures for linear models and generalized linear models along with their theoretical properties, and further introduce general strategy for model-based feature screening procedures. I then introduce model-free feature screening procedures and present a brief review on model-free feature screening procedures. I will also briefly introduce conditional feature screening procedures.

In the last part of my talk, I will present an application of feature screening method via an empirical analysis of online job advertisements data to quantify the differences in returns to skills. This is of great interest in both labor economics and statistics fields, to study the relationship between the posted salary and the job requirements in online labor markets. We propose a new feature screening method, Absolute Distribution Difference Sure Independence Screening (ADD-SIS), to select important skill words for the interval-valued response (such as \$75k–80k for annual salary). The marginal utility for feature screening is based on the difference of estimated distribution functions via nonparametric maximum likelihood estimation, which sufficiently uses the interval information. In the empirical analysis of online job market data, we study the text data of job advertisements for data scientists and data analysts in a major Chinese online job posting website, and explore the important skill words for the salary. We find that the skill words like optimization, long short-term memory (LSTM), convolutional neural networks (CNN), collaborative filtering, are positively correlated with the salary while the words like Excel, Office, data collection, may negatively contribute to the salary.

2023 IMS Elections: voting reminder



Have you voted yet for who you would like to represent you on the IMS Council, and as IMS President?

The nominee for President-Elect is **Tony Cai**. There are 10 candidates standing for the five available places on Council: **Sourav Chatterjee, Gábor Lugosi, Marina Meila, Andrew B. Nobel, Roberto Imbuzeiro Oliveira, Jasjeet S. Sekhon, Weijie Su, Caroline Uhler, Huixia Judy Wang,** and **Linda Zhao**. Read about them at **https://imstat.org/elections/candidates/**

Elections close June 24, 2023. Vote at https://www.imstat.org/portal/voting/8/step1

Lines from Layla: How are you saving the world?

We are pleased to welcome **Layla Parast**—Associate Professor in the Department of Statistics and Data Sciences at the University of Texas at Austin, mother, and CrossFit competitor—to the team of *IMS Bulletin* contributing editors, with her new column, *Lines from Layla*.

At my oral exam during my PhD, one of my dissertation committee members asked me: "How are you going to save the world?" I balked at the question. I had no intention of saving the world, I was just trying to survive a PhD. While I tried and failed to answer the question, I thankfully still passed my oral exam. And over a decade later, I can't help but continually come back to that question. *How am I saving the world?*

When I was applying for jobs after graduate school, I told my advisor that my goal in finding a job was "to be happy". That was it. Graduate school was hard. It was humbling. I was exhausted. I didn't want to be a famous statistician, I didn't want to worry about tenure, I didn't want to be stressed about publishing in top journals or getting a grant. I just wanted to be happy. And be somewhere with no snow.

I was ecstatic about being offered a job at the RAND Corporation, a nonprofit research institution in Santa Monica, CA. I was attracted to RAND because when I interviewed, people seemed happy, and they seemed to genuinely love their work. In contrast, when I interviewed for an academic position, people did not seem to love their job.

I loved working at RAND. It was the perfect fit for me. I learned so much and was surrounded by intelligent, supportive people. Nearly all of my projects were led by women. My work focused on healthcare policy. I would hear news stories on TV and on NPR and say out loud – that's my project! It was incredibly fulfilling.

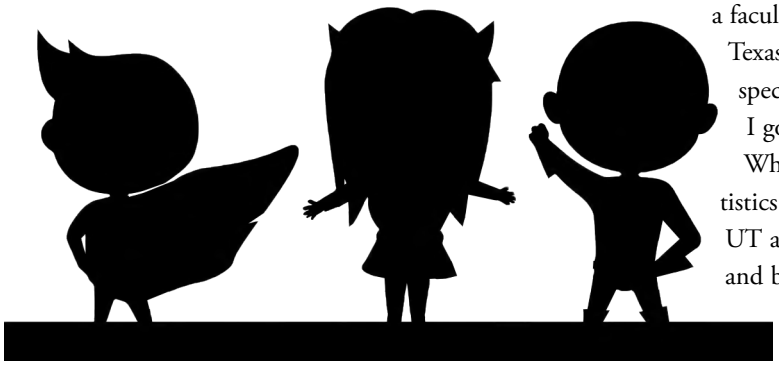
However, for obvious reasons, in 2020, everything changed. In mid-March 2020 I was in New York City for Spring Break with my husband and kids. We had refused to change our plans in the midst of early COVID fears. In a strange way, it was a perfect time to visit the city with kids. The subways and playgrounds were deserted, the restaurants had no waitlists, and the weather was beautiful. While I constantly reminded my kids to wash their hands, at one point on the subway I turned around to see my two-year-old daughter licking the seat of the subway car.

When we returned to L.A., my state of mind quickly went from *this is fine, it's going to pass* to *I'm going to die, we are all going to die, this is the end*. Like much of the world, we hunkered down at home and I was terrified. I finally ended up calming myself down by making peace with the fact that I might die. I had done everything I wanted to do in life: I married the love of my life, had a beautiful family, I traveled the world, I published some papers, I got a grant. I didn't have a bucket list of things I had yet to do. I had lived a full-enough life.

The weeks went on and I, obviously, didn't die. And then I wondered, well, if I've done everything I wanted to do in life, then what am I doing? This led to a major crisis of self. I still loved my job, but there was something missing. While I can point to many examples of impact my work has had at the policy level in the US, I could not point to a single person whose life has been impacted by my work. And all of sudden, I felt heartbroken.

As a daughter of two high school teachers, I spent my life hearing the advice to *not* be a teacher. There was so much bureaucracy and little pay. But I was also well-aware of the students who would write my parents letters years after they were in their class, telling them what a profound impact my parents had on the trajectory of their lives. Students who would see my parents in the grocery store years later and gush about their class. The pride in my dad's face when someone who hated math finally came to not only understand it, but love it.

In late 2020, I decided I wanted to teach. I wanted to have students. My PhD advisor is an incredibly accomplished researcher. But she also had an immense personal impact on my life. She continues to be my role model and friend. At a minimum, I wanted to give that to someone else. I left my job at RAND and took a faculty position at the University of Texas at Austin. UT Austin has a special place in my heart because I got my BS in math from UT. When I was here, there was no statistics department, so to come back to UT almost 20 years after I graduated and be part of a new department and have the opportunity to shape our new undergraduate major



in Statistics and Data Science has been incredibly rewarding.

It's overwhelming to ask yourself how you are going to save the world. But it's a valuable question and I am grateful that I was asked it so early in my career. Sure, if you can answer it, it will help you craft your grants and motivate your research papers. But it's deeper than that. Sometimes, you need to know why you do what you do. Why should you get out of bed? Why should you work on that painful paper revision? Or work on those awful simulations that don't seem to be working, no matter what you try? What's the point? Understanding how your work supports your values is key. It's how I decide what to say yes to and what to say no to. It's how I prioritize my day, my week, and my year.

We aren't (real) doctors. We don't literally save lives. But as teachers, as researchers, and as leaders, we do save the world—one person at a time.

Call for papers: Analysis of citizen science data

Citizen science involves volunteers who participate in scientific research by collecting data, monitoring sites, and even taking part in the whole process of scientific inquiry (Roy et al. 2012, Scyphers et al. 2015). In the past two decades, citizen science (also called participatory or community-based monitoring) has gained tremendous popularity (Bonney et al. 2009, Danielsen et al. 2014; Aceves-Bueno et al., 2017). These opportunistic datasets can be substantially large, numbering hundreds of thousands of units and present many statistical challenges in terms of sparse and missing data, issues with data collection (e.g. reporting bias and spatial bias) and computational challenges (Dakki et al., 2021; Diana et al., 2022).

Motivated by novelty and emerging spread of such activities and statistical issues they bring ahead, the Royal Statistical Society (RSS) Discussion Paper Meetings Committee, along with the RSS Sections on Emerging Applications and Environmental Statistics, are jointly inviting submissions of discussion papers on the analysis of citizen science data. These papers can cover any methodological or applied aspect or theoretical underpinning on the topic. Examples of topics of interest include (but are not restricted to):

- High-dimensional approaches and their generalizations in citizen science data analysis;
- Computational issues in the analysis of citizen science data;
- Evaluation of the usage of citizen science data in scientific publications;
- Innovative and emerging citizen science data applications in environmental sciences, health, biology, education and other areas;
- Democratization of science and statistical literacy in the post-pandemic era;
- Open source intelligence and open data practices in citizen science;
- Developments in statistical and data science methods for citizen science data (e.g. causal inference, Bayesian approaches, functional data analysis, machine learning).

Papers selected for publication will be presented at a multi-paper discussion meeting held at the RSS International Conference in Brighton, UK, in September 2024, and subsequently published in one of the series of Journal of the Royal Statistical Society (JRSS), together with all contributions to the discussion at the meeting itself or submitted in writing shortly afterwards. All submitted papers are refereed, both for their scientific quality and their potential to generate discussion. Papers that meet the first criterion but not the second may, with the agreement of the authors, be referred to the editors of the Journal for review as a regular paper.

Submitted papers should be substantially shorter than is typical for a single-paper discussion meeting (16 pages max excluding supplementary material following standard JRSS formatting instructions). We shall employ a two-step process to expedite the peer review process.

Abstract submission. Authors are invited to send a single-page abstract (400 words max) of their proposed paper to Judith Shorten, the RSS Journals Manager journal@rss.org.uk by **30 June 2023**. Notification of accepted abstracts will be made by 14 July 2023 together with an invitation to submit a full paper. Full papers (16 pages max) should then be submitted via manuscript central to the most appropriate journal series (A, B or C) selecting the "Discussion Paper" option. The deadline for full paper submission is 10 November 2023.

All papers received by 10 November 2023 will be refereed using the Society's standard criteria for discussion meeting papers (scientific quality and potential to generate discussion).

Final versions of accepted papers will be ready for pre-printing by mid-2024.

Informal enquiries about the call can be made by email to the Discussion Papers Editor, Adam Sykulski at adam.sykulski@imperial.ac.uk

Introducing… Clara-fications

A new column, and a new way to interact with the *Bulletin*

Columnist Radu Craiu introduces our new advice column for early-career researchers:

Every beginning is hard, and a career in science is, oh my, no exception. Floating about your head is the uncertainty about the long journey ahead, the frustration of having myriad questions met by vague responses, the stress of observing the tense silence of your peers who are struggling with the same demons. This is followed, if all goes well, by the unbearably long time it takes to get any sort of recognition, and by that I mean getting a "hello" at that conference that just cost half of one's grant.

To add self-inflicted injury to perceived insult, research in mathematics and statistics is often a solitary endeavour, but that should not condemn its disciples to loneliness. Any graduate program worth its salt will be conducive to collaborations and mutual support between its post-graduates. Perhaps one of the greatest joys as an advisor is to witness the evolution of one's student from whatever promising—possibly, painful to watch—starting point they have, to becoming a selective, insightful, and ultimately productive researcher who is able to connect and communicate ideas effectively. On that eventful road, a desirable highlight is to see research produced by two students without faculty supervision, an occurrence that reifies not only their talents but the positive environment in which they work.

A recent exchange, seen on some web-supported social platform, made me realize that not all, and maybe not even most, early-career researchers benefit from wisdom within an arm's length. As a professional society whose future depends on our young members and very young future members, IMS wants to provide as much support as possible to them. So, the *IMS Bulletin* is launching a new column, coordinated by Dr. Clara Grazian, which will provide answers to questions posed by members of the IMS community. This will hopefully lead to more discussions and a consolidation of our statistical community. **Questions should be sent to bulletin@imstat.org**.

I have asked Clara to say a few things about herself and the aims of the new "Clara-fications" column: see the sidebar, right. We look forward to hearing from you!

Hello everyone! My name is **Clara Grazian** and I am a statistician living down under (i.e. in Australia). My path is probably not standard: I got my PhD in a very theoretical department in Paris, then moved into a very applied project in genomics for my postdoc at the Big Data Institute, University of Oxford, and then I flew to Australia to become a Senior Lecturer, back to methodological statistics, and I am now a passionate researcher of environmental data (and a bit on genomics as well). And I have worked for five statistical societies. This means that maybe I won't know the answer (or maybe I will!) but I will think of someone who does. We have amazing researchers in the IMS community!

Young researchers are welcome to send their **questions about the life of a researcher or ask for career advice**, and I will try to find an answer… We'll publish these [*anonymized to avoid awkwardness!*] in the next available issue.

IMS Travel Award winners

One of the ways the IMS supports young researchers is by providing travel awards to enable them to attend (IMS sponsored or co-sponsored) meetings to present their research, gain knowledge, meet new collaborators and friends, and build their networks. Congratulations to the 20 winners of the IMS Hannan Graduate Student Travel Award, and 15 winners of the IMS New Researcher Travel Award, who are presented here. Be sure to say hello if you see them at a meeting!

Hannan Awards

Medha Agarwal, *University of Washington*

Aditi Basu Bal, *Florida State University*

Josefina Correa Menéndez, *Massachusetts Institute of Technology*

Yu Gui, *University of Chicago*

Mengbing Li, *University of Michigan, Ann Arbor*

Continues on **page 23**

IMS Hannan Graduate Student Travel Award winners (continued)


***Zhexiao Lin**, University of California, Berkeley*


***Jing Ouyang**, University of Michigan*


***Prabrisha Rakshit**, Rutgers University*


***Rahul Singh**, Massachusetts Institute of Technology*


***Kai Tan**, Rutgers University*


***Yuxin Tao**, Tsinghua University*


***Ye Tian**, Columbia University*


***Zhaoxue Tong**, Pennsylvania State University*


***Lasse Vuursteen**, Delft University of Technology*


***Di Wang**, University of Michigan*


***Yuexi Wang**, University of Chicago*


***Qi Xu**, University of California, Irvine*


***Yuling Yan**, Princeton University*

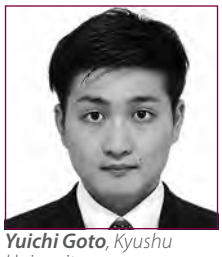

***Mengxin Yu**, Princeton University*


***Yichen Zhu**, Duke University*

New Researcher Travel Awards


***Zhanrui Cai**, Iowa State University*


***Yifan Cui**, Zhejiang University*


***Yuichi Goto**, Kyushu University*


***Tian Gu**, Harvard University*


***Sharmistha Guha**, Texas A&M University*


***Yinqiu He**, University of Wisconsin-Madison*


***Feiyu Jiang**, Fudan University*


***Mbanefo S. Madukaife**, University of Nigeria*


***Nicole E. Pashley**, Rutgers University*


***Zhengling Qi**, George Washington University*


***Arkaprava Roy**, University of Florida*


***Chih-Li Sung**, Michigan State University*


***Lu Tang**, University of Pittsburgh*


***Ting Ye**, University of Washington*


***Xiufan Yu**, University of Notre Dame*

Mathematical notation in Probability & Statistics

IMS Fellow Jordan Stoyanov (Newcastle University, UK, Bulgarian Academy of Sciences and Shandong University, China) wants your involvement in finding agreement on a set of rules for distinct and well-recognizable notations and abbreviations for writings in Probability and Statistics:

When writing papers, books, reports and reviews, we follow good traditions and specific requirements. While most of the notations and abbreviations used in the literature are more or less natural, clear, appropriate and distinct, there are some that are distracting, misleading or just plain tasteless—original and exotic inventions, far from any common sense.

I have discussed these issues with several well-experienced colleagues over the last two decades. Many of them agreed that the current notations and abbreviations in our area, even those that have been used for years, need to be improved and unified. Somebody has to summarize existing good practice and start both speaking publicly about this issue and making specific initial suggestions. Hopefully, this may attract the attention of experienced colleagues and involve them to come up with new and valuable suggestions. Since as they say, "two heads are better than one," if even 1% of the 4,000 or so members of the IMS are willing to take part in this project, the result will be great.

Based on my 50 years' experience as a reader, author, teacher, reviewer and editor, I have found good reasons to write this well-intended Essay. The first version of it was distributed recently to colleagues worldwide, and many authors and a couple of editors expressed strong support. Some authors wrote to tell me how happy they are about switching to a sans serif font for probability, expectation and variance. Yes, there are skeptics. However, it is never too late to take steps in the right direction and enjoy the good outcome.

It is natural to distribute this Essay among a wide audience hoping an appropriate platform for discussions to be found. Thus, if there is a common wish among the scientific community, a compromise can, and should, be found—followed by well selected suggestions to be recommended for implementation. Here is the question: Who will do this, and when?

I am kindly appealing to my fellow probabilists and statisticians, to all mathematicians, to publishers, editors, authors, reviewers, with reference to the saying: If not us, then who? If not now, then when?

Three reasonable motivating rules

Rule 1. Use one letter/symbol as the notation for only one item/object.

Rule 2. For each specific group of objects, use the same font.

Rule 3. For different groups of objects use different fonts.

Good choices for fonts

Use sans serif for probability, expectation, variance, covariance; "mathbb" for spaces of reals, integers, complex numbers; "mathcal" for classes, families.

Some terrible examples

Are you comfortable with the following *terrible* examples met in the literature?

Example 1: Let the IID $\{X_n\}$ be ID with DD… (Meaning: IID = "independent and identically distributed", ID = "infinitely divisible", DD = "decreasing dependence".)

Example 2: The probability $\Pr(\xi \le x)$, its expectation $\mathbb{E}\,\xi$ and variance $\operatorname{var}\xi$… (Here "Pr", "E", and "var" are in one group of objects, the same font must be used, say, sans serif.)

Example 3: For a RV $\mathbb{X}$ on the probability space $(\Omega, \mathcal{F}, \mathbb{P})$ with values in $\mathbb{R}$, denote $\mathbb{E}[\mathbb{X}] = \int_\Omega \mathbb{X}(\omega) d\mathbb{P}$; $\mathbb{P}[\mathbb{X} \le x] = \mathbb{F}(x)$, $x \in \mathbb{R}$. (Here, the same font, mathbb, is used for five different objects. Terrible!)

Natural, simple and clear abbreviations

Some publishers do not allow abbreviations. If allowed, then a good practice is to use the following: i.i.d., r.v., d.f., a.s., m.g.f., p.g.f., ch.f., inf.div. (no space between). The meaning of each is clear at one glance. It is old-fashioned to write RV, PDF, CDF: density is density, why PDF? Why all these capitals? Why CDF, it is cumulative by definition? It is clear enough to write simply "density" and "d.f.".

Mathematics Subject Classification (MSC)

Use the last and universal MSC 2020. Strangely, there are still papers in journals (though not by IMS) referring to the old MSC 2010, and even to MSC 2000.

Traditionally, we first look for works of good content in our specific area. Next, we pay attention to how appropriate, clear and distinct notations are used. Good notations make the works easier to read! This does not apply to people who only write but do not read.

Continues on **page 25**

Specific basic notations

Below is a brief list of basic notations (many of which are widely used in Mathematics):

For the standard normal density use φ ("varphi") not ϕ ("phi"). Also use ε, not ϵ.

Use the "mathcal" font for the normal distribution, $\mathcal{N}(0, 1)$ and $\mathcal{N}(\mu, \sigma^2)$, standard and with parameters μ, σ^2.

For spaces and sets, use the "mathbb" font: $\mathbb{R} = (-\infty, +\infty)$, $\mathbb{R}^n$, $\mathbb{R}_+ = [0, \infty)$; $\mathbb{Q}$ for the rationals; $\mathbb{C}$ for the complex plane; $\mathbb{N} = \{1, 2, \ldots\}$ or $\mathbb{Z}_+$, $\mathbb{N}_0 = \{0, 1, 2, \ldots\}$ or $\mathbb{Z}_0$, $\overline{\mathbb{N}} = \{\ldots, -2, -1, 0, 1, 2, \ldots\}$ or $\mathbb{Z}$. But not the "mathbf" font (**R**, **N**, etc.), which is reserved for matrices and vectors. See below.

The "mathcal" font is good for families, σ-algebras, sets of functions: $\mathcal{A}$, $\mathcal{B}$, $\mathcal{D}$, $\mathcal{F}$, $\mathcal{C}$, $\mathcal{N}$, $\mathcal{P}$, $\mathcal{M}$, etc.

Use Roman font (e, d, exp, Re, and Im, respectively, for the Napier constant, differentials, exponent, real and imaginary parts of a complex number). Not e, d, exp, and not $\mathcal{R}e$ and $\mathcal{I}m$.

Parentheses/curly brackets: max$\{a, b\}$, min$\{a, b\}$ is better than max(a, b), min(a, b), etc.

For functions (mappings), use $\mapsto$ not $\to$; the latter is reserved for convergence.

For specified, say s-convergence, use $\xrightarrow{s}$, but not $\to_s$ or $\to^s$.

For convergence, instead of $\overset{n\to\infty}{\longrightarrow}$, it is better to write $n\to\infty$ after.

Keep $\Gamma(\cdot)$ and $\mathrm{B}(\cdot, \cdot)$ for the classical Euler's Gamma function and Beta function.

Use $\gamma(a, b)$, or Gamma(a, b), for the gamma distribution with parameters a, b. Not $\Gamma(\alpha, \beta)$.

Use $\beta(a, b)$, or Beta(a, b), for the beta distribution with parameters a, b. Not $\mathrm{B}(\alpha, \beta)$.

Use Exp(λ) for the exponential distribution with parameter λ. But not $\exp_\lambda$.

Use Bin(n, p) for the binomial distribution with parameters n, p.

Use Poi(λ) for the Poisson distribution with parameter λ.

Use Ge(p) or Geo(p) for the geometrical distribution with parameter p.

Keep the "mathbf" font for matrices and vectors: **A**, **B**, …, **a**, **b**, ….

Use a sans serif font for the following objects/items, as they are all in one group: P; E; V or Var; $\mathsf{Cov}(\cdot, \cdot)$; $\mathsf{Corr}(\cdot, \cdot)$; for probability, expectation, variance, covariance, correlation. [Note, this font was used by A.N. Kolmogorov in his book 1933 *Grundbegriffe der Wahrscheinlichkeitsrechnung,* and in any of the many translations and editions, including in *Foundations of Probability Theory*, Chelsea Publ. Co., 1956. Although $\mathbb{P}$, **P**, and Pr are still in use, they should be smoothly switched to sans serif as an excellent option.]

Two symbols: $X \perp Y$ for orthogonal (uncorrelated) r.v.s; $X \perp\!\!\!\perp Y$ for independent r.v.s.

Final words

While the mathematical content is priority number one, no less important are things of a technical nature, like those discussed above. The use of good, consistent notation and abbreviations will lead to an improved face of writing in Mathematics, in particular in Probability and Statistics.

There are masterly written books and masterly designed journals. One of the reasons is that the authors, either by themselves, or following the journal rules, use notions, notations and abbreviations which are distinct and well recognizable. The conclusion is: Let us follow the Masters!

Note that in this Essay, there is no attempt to discuss other important aspects such as recommendations on styles for citations and references. These reserved areas are almost entirely in the hands of publishers and journal editors.

Further Reading

There is a huge number of available sources on the topics discussed above. Below is a small selection of works by Masters:

Karim Abadir, Jan Magnus (2002). Notions in Econometrics: a proposal for a standard. *Econometrics Journal* **6**:1, 76–90.

Luc Devroye (2020). Mathematics fonts. http://luc.devroye.org/math.html

Paul Halmos (1970). How to write Mathematics. *L'Enseignement Mathématique* **16**:1, 123–152.

Donald Knuth (1992). Two notes on notation. *Amer. Math. Monthly* **99**:5, 403–422.

Steven Krantz (2001). *Handbook of Typography for the Mathematical Sciences*. Chapman & Hall/CRC.

Igor Pak (2018). How to write a clear Math paper: Some 21st century tips. *Journal of Humanistic Mathematics* **8**:1, 301–328.

Jean-Pierre Serre. How to write Mathematics badly. https://www.youtube.com/watch?v=ECQyFzzBHIo

Terence Tao (2007). What is good Mathematics. Preprint, Department of Mathematics, UCLA.

Stephen Wolfram (2000). *Mathematical Notation: Past and Future*.

GET INVOLVED!

To share your opinions, ideas and specific suggestions, please email Jordan Stoyanov with your thoughts: stoyanovj@gmail.com.

IMS meetings around the world

Joint Statistical Meetings

2023 Joint Statistical Meetings
August 5–10, 2023 in Toronto
w https://ww2.amstat.org/meetings/jsm/2023/
The IMS Program Chair is Huixia Judy Wang, George Washington University.

JSM dates for 2024–2026

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

2023 IMS International Conference on Statistics and Data Science 2023 (ICSDS)
December 18–21, 2023
Lisbon, Portugal
w https://sites.google.com/view/icsds2023/
We are delighted to report that the IMS 2023 ICSDS (International Conference on Statistics and Data Science), December 18–21, 2023 in Lisbon, Portugal, has received a tremendous response, including many outstanding invited speakers from different countries and continents, covering a wide range of subjects in statistics and data science, in theory, methodology and applications. In particular, we are pleased to announce the **four confirmed plenary speakers**: **David Donoho**, **Michael Jordan**, **Gábor Lugosi** and **Caroline Uhler**. For more details, see https://sites.google.com/view/icsds2023/plenary-speakers

Registration and abstract submission (for all invited and contributed talks and posters) will open on May 25. Please register soon to take advantage of early registration discount rates.

Finally, the ICSDS will provide **10 Student Travel Awards, $800 USD each, to PhD students who participate in the invited or contributed program**. Applicants for the awards must be members of IMS, and joining at the time of application is allowed. Note that IMS membership is FREE for all students. The submission site for applications for travel awards will be open from July 1 to September 15, 2023.

We look forward to seeing you at the ICSDS in Lisbon in December.

Regina Liu and Annie Qu, Program Co-chairs, 2023 IMS ICSDS

43rd Conference on Stochastic Processes and their Applications
July 24–28, 2023
Lisbon, Portugal
w https://www.spa2023.org/
Featuring talks by **Louigi Addario-Berry** (Schramm lecture), **Riddhipratim Basu**, **René Carmona** (Doob lecture), **Jean-Dominique Deuschel**, **Massimiliano Gubinelli** (Medallion lecture), **Martina Hofmanova**, **Richard Kenyon** (Medallion lecture), **Gesine Reinert**, **Makiko Sasada**, **Sylvia Serfaty** (Medallion lecture), and **Horng-Tzer Yau** (Lévy lecture). Doeblin & Itô prize lecturers to be announced.

IMS New Researchers Conference
(23rd Meeting of New Researchers in Statistics and Probability)
August 2–5, 2023. University of Toronto
w https://sites.google.com/site/linbowangpku/nrc-2023
Promoting interaction and networking among new researchers in statistics and probability, the meeting will take place immediately before JSM Toronto. The application deadline has passed.

At a glance:

forthcoming IMS Annual Meeting and JSM dates

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

The 2023 Workshop of Statistical Network Analysis and Beyond (SNAB 2023)
June 15–17, 2023 (immediately before WNAR/IMS meeting)
Anchorage, Alaska, USA
w https://www.snab2023.org/
Over the span of three days, this workshop aims to unite researchers in the field of network science and related disciplines, providing an avenue for the exchange of innovative ideas and recent findings. The workshop will encompass a wide range of topics, ranging from statistical network modeling to more extensive fields such as tensor modeling, social/economic network analysis, deep learning, and text analysis. The event will feature approximately 12 research talks each day, alongside a mixer with the poster competition on the first day and a banquet on the second day.

Contact: Please contact tianxili@virginia.edu or riczw@rams.colostate.edu for any questions regarding the workshop.

WNAR 2023
June 18–21, 2023
Anchorage, Alaska, USA
w https://wnar.org/wnar2023
Scientific program chair: Audrey Hendricks, University of Colorado Denver. IMS program chair: Hua Zhou, UCLA. Local organizer: Jiaqi Huang, Alaska Department of Fish and Game. Chair of Student Award Committee: Charlotte Gard, New Mexico State University.

The 2023 WNAR/IMS meeting will be held in Anchorage, Alaska from Sunday, June 18 through Wednesday, June 21, 2023. The conference will be held at Hilton Anchorage in downtown Anchorage. It immediately follows the 2023 Workshop on Statistical Network Analysis and Beyond (SNAB2023), see the announcement above.

Registration is open ($450 for IMS members). See the link at https://wnar.org/event-5048851/Registration

Program highlights include short courses, the WNAR President's invited presentation, invited and contributed oral sessions, student paper sessions, a welcome reception and a banquet.

Please contact the WNAR/IMS local organizer Jiaqi Huang (jiaqi.huang@alaska.gov), WNAR program chairs Audrey Hendricks and Wen (Rick) Zhou (wnarprogramchair@gmail.com), or IMS program chair Hua Zhou (huazhou@ucla.edu) for more information.

Joint Conference on Statistics and Data Science in China
July 11–13, 2023. Peking University, Beijing, China
w https://www.stat-center.pku.edu.cn/en/Events/conference/1364567.htm
This is the inaugural Joint Conference on Statistics and Data Science, initiated and sponsored by four Chinese Statistical Societies (Applied Statistics Association, Chinese Probability and Statistics Society, National Industrial Statistics Teaching and Research Association, and Chinese Business Statistics Association) and IMS-China. The conference aims to promote academic exchanges in the field of statistics and data science, cultivate a good academic environment, lead statistical innovations, and promote interfaces among academia and industry.

21st INFORMS/Applied Probability Society meeting
June 28–30, 2023. Nancy, France
w https://informs-aps2023.event.univ-lorraine.fr/
Featuring an **IMS Medallion Lecture by Sylvie Méléard** and the Marcel Neuts Lecture by Beatrice Meini; other Plenary Lectures by Frédéric Chazal, Sean Meyn and Amy R. Ward. Tutorial speakers are Paul Embrechts and Sarah Penington. Registration is open. The deadline for early-bird registration rates is May 1.

Southeastern Probability Conference (the second one in 2023) UPDATED
August 14–15, 2023
University of Virginia, Charlottesville
w https://sites.google.com/view/sepc2023ii/
The Southeastern Probability Conference is co-sponsored by the Institute for Mathematical Statistics and supported by NSF grant DMS 2011385. The speakers at the University of Virginia meeting in August are

Partha Dey, University of Illinois, Urbana-Champaign
Promit Ghosal, Massachusetts Institute of Technology
Arjun Krishnan, University of Rochester
Jessica Lin, McGill University
Jonathan Mattingly, Duke University
Oanh Nguyen, Brown University
Jonathon Peterson, Purdue University
Igor Pritsker, Oklahoma State University
Firas Rassoul-Agha, University of Utah

Graduate students and early career faculty may apply for support. There will be 10–12 awards of up to $500 for expenses of attending the conference. For more details, please visit the website.

ICSA 2023 China Conference
June 30–July 3, 2023
Chengdu, Sichuan, China
w https://maths.swjtu.edu.cn/english/ICSA_2023_China_Conference/Conference_Introduction.htm
The 2023 ICSA China Conference will be held at Chengdu, Sichuan, China from June 30 to July 3, 2023. It is co-organized by the Southwest Jiaotong University. The conference venue is Jinniu Hotel (http://www.jnhotel.com/).

The theme of this conference is *"Data Science with Applications to Big Data Analysis and AI"*, in recognition of the big data era.

The executive and organizing committees have been working diligently to put together a strong and comprehensive program, including keynote lectures, invited sessions, poster sessions, junior researcher award session, and exciting social events. Our scientific program reflects recent challenges in statistics, business statistics, and biostatistics, which are related to the big data analysis. The conference will provide great opportunities for learning, networking and collaborations. Participants will share the thoughts and ideas with conference guests, and receive inspirations from old research ideas and develop new ones.

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, Mark Holmes, Estate Khmaladze (chair), Krishanu Maulik, Spiro Penev, Masanobu Taniguchi, Lijiang Yang, and Nakahiro Yoshida—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.

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

IMS–APRM in Melbourne, Australia
NEW DATES: January 4–7, 2024 UPDATED
w https://ims-aprm2024.com/
IMS-APRM will provide an excellent forum for scientific communications and collaborations for researchers in Asia and the Pacific Rim, and promote communications and collaborations between the researchers in this area and those from other parts of the world. The program covers a wide range of topics in statistics and probability, presenting recent developments and the state of the art in a variety of modern research topics and in applications. The conference organizers are now accepting session proposals (deadline for submission is April 16, 2023).

WNAR2024
held in conjunction with the 2024 Graybill Conference
June 9–12, 2024
Fort Collins, Colorado, USA
w https://wnar.org/Meetings
The 2024 meeting of the Western North American Region of The International Biometric Society will be held joint with the 2024 Graybill Conference.

IMS annual meeting
Bernoulli–IMS 11th World Congress in Probability and Statistics
August 12–16, 2024
Ruhr-University Bochum, Germany
w https://www.bernoulli-ims-worldcongress2024.org/ UPDATED
The Institute of Mathematical Statistics Annual Meeting will be held at the 11th World Congress.

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 and events around the world

Non-stationarity, cyclo-stationarity and applications
June 5–7, 2023
Nanterre, France
w https://nonstationarity.sciencesconf.org/

This conference aims to gather specialists in time series with a special focus on non-stationarity. Such time series appear naturally in many fields and are common in medicine (EEG), economics, or linguistics applications. The conference is dedicated to the memory of our colleague Bernard Desgraupes (university Paris-Nanterre), who planned to organize this conference with us. It will encourage collaborations between theoretical and applied researchers.

The conference is free of charge but registration is mandatory (in particular for reservations of the meals and the gala dinner).

7th IMA Conference on Mathematics in Defence and Security
September 7, 2023
London, UK
w https://ima.org.uk/20850/7th-ima-defence/

This conference aims to bring together a wide variety of participants and topics applying a variety of mathematical methods with defence and security applications. The programme will include invited speakers, presentations and poster sessions, as well as refreshment breaks for informal discussions.

It is aimed at mathematicians, scientists and engineers from both industry and academia, in addition to government and military personnel who have an interest in how mathematics can be applied to defence and security problems.

Royal Statistical Society Discussion Meeting: 'Parameterizing and Simulating from Causal Models' by Robin Evans and Vanessa Didelez
October 3, 2023
Hybrid: London, UK, and online
w https://rss.org.uk/training-events/events/key-events/discussion-papers/

Join us on October 3rd at 4pm (UK time) to hear the authors present their Series B discussion paper at a discussion meeting at RSS Offices in London and online. There is also a pre-meeting introduction at 2:30pm (a DeMO). The event is open to everyone and free to attend. There will be ample networking opportunities at Errol Street, with receptions both before and after the meeting.

Meeting details and the preprint can be found at the website above. Registration is essential.

We encourage comments on the paper following the presentation by the authors. This can then be written up in 400 words for publication in the journal. Contact j.shorten@rss.org.uk for full details and to reserve a speaking slot of up to five minutes. Alternatively, you can decide on the day to make a comment. We very much hope to see you there.

23rd European Young Statisticians Meeting (EYSM) 2023
September 11–15, 2023
Online
w https://sites.google.com/view/eysm2023

The European Young Statisticians Meetings (EYSM) is a series of conferences that is organised by and for young European statisticians. The EYSM are held every two years under the auspices of the European Regional Committee of the Bernoulli Society. The meeting will gather about 60 participants from all European countries.

The idea of the meeting is to provide young researchers (less than 30 years of age, or two to eight years of research experience) an introduction to the international scene within the broad subject area, from pure probability theory to applied statistics. Every participant is expected to submit an abstract and a short paper for conference proceedings and to give a 20 minute talk introducing his/her research field to a wide audience. Participation is by invitation only.

European Meeting of Statisticians 2023
July 3–7, 2023
Warsaw, Poland
w https://ems2023.org/

The 34th European Meeting of Statisticians (EMS), sponsored by the European Regional Committee of the Bernoulli Society, is the main conference in statistics and probability in Europe. EMS is a conference where statisticians from all regions meet to exchange ideas and talk about the newest developments in the broad field of statistics and probability theory.

The conference will be held at the campus of the University of Warsaw.

The program consists of invited and contributed lectures, and posters, addressing a full range of subjects in statistics and its many applications.

New Frontiers in Reliability and Risk Analysis: A Tribute to Nozer D. Singpurwalla
October 13–14, 2023
Washington DC, USA

w https://statistics.columbian.gwu.edu/nds2023

The symposium, "New Frontiers in Reliability and Risk Analysis: A Tribute to Nozer D. Singpurwalla" will take place at The George Washington University on October 13–14, 2023.

This two-day meeting will commemorate the life and work of Nozer Singpurwalla by bringing together experts from the fields he helped to shape. The symposium will feature four plenary sessions highlighting prominent speakers who each knew Nozer personally and reflect his diverse research interests. The plenary speakers are **Jim Berger** of Duke University, **Sallie Keller** of the US Census Bureau, **Way Kuo** of City University of Hong Kong, and **Jayaram Sethuraman** of Florida State University. Past (2017) American Statistical Association President **Barry Nussbaum** – who is also one of Singpurwalla's former doctoral students – will give the keynote address during the symposium banquet.

The meeting will likewise bring together young future researchers and national and international scholars with diverse disciplinary backgrounds to present and discuss current and emerging trends in a variety of disciplines, including reliability, risk analysis, Bayesian methods, time series analysis, decision theory, and foundations of statistics. Along with theoretical foundations impacting statistics, computer science, and mathematics, researchers can likewise present applications regarding these topics in business, engineering, environmental studies, finance, and the health sciences.

Limited travel support will be available for students participating in the poster session.

We look forward to welcoming you to this symposium to celebrate Nozer's important contributions to all of the disciplines in which he worked.

To learn more about and/or register for the symposium, please visit the website or send an email with any questions or concerns to nds.symposium@gmail.com.

Ingram Olkin Forum (IOF) workshop: Statistical Challenges in the Analysis of Police Use of Force
November 9–10, 2023
Carleton College, Northfield, MN, USA

w https://www.niss.org/events/iof-workshop-statistical-challenges-analysis-police-use-force

Motivation: Excessive use of force by police is an urgent problem of concern to sociologists, statisticians, policymakers, and the general public. Issues with data quality, processing of unstructured data, trade-offs between data access and privacy concerns, statistical challenges in analyzing fairness, and other topics have been highlighted as specific areas of concern. In addition, the methodologies used to analyze police use of force have also been extremely varied and results are often incompatible or rely on implausible unstated assumptions.

This in-person Ingram Olkin Forum (IOF) workshop is an extension to our earlier online IOF webinar hosted in June 2021 featuring speakers Dean Knox (University of Pennsylvania), Travis Riddle (National Police Foundation), and Robin Engel (University of Cincinnati); the webinar was moderated by Claire Kelling (Carleton College).

During the in-person forum, we hope to shed light not only on unique approaches and perspectives in these areas, but also to suggest steps that statisticians and researchers should consider that might aid in a deeper understanding of these issues and provide better evidence to support reform efforts.

Dissemination/Expected Output: This forum will be hosted as a two-day workshop to overview research in this area and facilitate research collaborations that advance statistical methodology for analyzing police use of force. The breakout sessions will develop research groups on focused topics within the broader research area. After the workshop, we will write a white paper on the discussion and next steps discussed in the workshop and plan for each working group to produce a manuscript suitable for publishing at a scientific journal.

Potential topics include: • Quality Issues with Aggregate Crime Data • Statistical Issues in Analyzing Fairness and Bias • Unstructured Data: Prospects and Challenges • Data Access and Privacy Considerations • Community Collection and Use of Policing Data • Funding Opportunities Organizing Committee: Claire Kelling, Carleton College Dean Knox, University of Pennsylvania Tarak Shah, Human Rights Data Analysis Group Greg Lanzalotto, University of Pennsylvania

Contact: Claire Kelling ckelling@carleton.edu.

Employment Opportunities

Germany: Heidelberg
Heidelberg University, Faculty of Mathematics and Computer Science
Full-Professorship (W3) in Mathematical Statistics (f/m/d)
https://jobs.imstat.org/job//69158105

Hong Kong
City University of Hong Kong
Dean of School of Data Science
https://jobs.imstat.org/job//68553039

Hong Kong
The University of Hong Kong
Tenure-Track Associate Professor/Assistant Professor in Statistics
https://jobs.imstat.org/job//69020964

India: Mohali, Punjab
Plaksha University
Professor / Associate Professor /Assistant Professor of Applied Mathematics, Statistics & Data Science
https://jobs.imstat.org/job//68960605

Switzerland: Lausanne
Ecole Polytechnique Fédérale de Lausanne
PhD
https://jobs.imstat.org/job//52027160

Switzerland: Lausanne
Ecole Polytechnique Fédérale de Lausanne (EPFL), Mathematics Dept.
Postdoctoral Researcher
https://jobs.imstat.org/job//68226979

United States: San Diego, CA
Art of Problem Solving
Math Curriculum Developer (Beast Academy, Virtual Campus, AoPS Online)
https://jobs.imstat.org/job//68868571

United States: New Haven, CT
Yale University
Assistant Professor, Biostatistics
https://jobs.imstat.org/job//68972377

Singapore

National University of Singapore
Assistant, Associate and Full Professor Positions in the Department of Statistics and Data Science

The Department of Statistics and Data Science at the National University of Singapore invites applications for full-time open-rank positions in statistics, data science and related areas at tenure track and tenured levels.

The National University of Singapore offers internationally competitive salaries, generous research funding, travel support, relocation assistance and other benefits. The Department of Statistics and Data Science has nearly 40 faculty members and provides a stimulating research environment.

Applicants must have demonstrated exceptional research potential. For the Associate and Full Professor positions, they must also have a track record of excellence in teaching and leadership.

Please submit a cover letter, curriculum vitae, research and teaching statements, and at least three letters of recommendation either to mathjobs.org or to Ms Muslihah at muslihah@nus.edu.sg.

We have an ongoing recruitment process and will review applications as they are received.

More information about the university and the department can be found at:
https://www.nus.edu.sg and https://www.stat.nus.edu.sg/.

Employment Opportunities continued

United States: Washington, DC

CIA

Science, Technology & Weapons Analyst

https://jobs.imstat.org/job//65521691

United States: Washington, DC

CIA

DA Fellowship Program

https://jobs.imstat.org/job//65521688

United States: Leesburg, FL

Lake-Sumter State College

Math Faculty - Full Time (9 month contract)

https://jobs.imstat.org/job//68984566

United States: Chicago, IL

University of Chicago

Preceptor in Data Science

https://jobs.imstat.org/job//68077382

United States: Chicago, IL

The University of Chicago

Senior Instructional Professor (open rank)

https://jobs.imstat.org/job//69217769

United States: Saint Louis, MO

Washington University at St. Louis

Postdoctoral Fellow: Transdisciplinary Institute in Applied Data Science

https://jobs.imstat.org/job//68734969

United States: Fairfax, VA

George Mason University, Department of Statistics.

Tenure-track and renewable-term, non-tenure-track Assistant/Associate Professor

https://jobs.imstat.org/job//68586895

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

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

June 2023

NEW June 1–4: Colorado School of Mines, USA. **2023 International Indian Statistical Association (IISA) Conference** w https://www.intindstat.org/conference2023/

NEW June 5–7: Nanterre, France. **Non-stationarity, cyclo-stationarity and applications** w https://nonstationarity.sciencesconf.org/

June 6–9: West Lafayette, USA. **10th International Purdue Symposium on Statistics** w https://www.stat.purdue.edu/symp2023/index.html

HYBRID June 6–9: Heraklion, Greece, and online. **ASMDA 2023 Conference and Demographics 2023 Workshop** w http://www.asmda.es/

June 12–16: Esch-sur-Alzette, Luxembourg. **International Conference on Malliavin Calculus and Related Topics** w https://math.uni.lu/icmcrt/

June 2023 continued

June 15–17: Anchorage, USA. **2023 Workshop of Statistical Network Analysis and Beyond (SNAB 2023)** **w** https://www.snab2023.org/

June 18–21: Anchorage, USA. **WNAR2023** **w** https://wnar.org/wnar2023

June 26–30: Liverpool, UK. **Random Structures, Applied Probability and Computation** (*LMS Research School on Probability*) **w** https://sites.google.com/view/lms-school-liverpool2023/home

June 28–30: Nancy, France. **21st INFORMS/APS Meeting** **w** https://informs-aps2023.event.univ-lorraine.fr/

June 30–July 3: Chengdu, China. **ICSA 2023 China Conference** **w** https://maths.swjtu.edu.cn/english/ICSA_2023_China_Conference/Conference_Introduction.htm

July 2023

July 3–7: Warsaw, Poland. **34th European Meeting of Statisticians (EMS)** **w** https://ems2023.org

July 4–6: Nottingham, UK. **Modelling in Industrial Maintenance and Reliability** **w** ima.org.uk/20581/12th-mimar/

July 7–10: Thessaloniki, Greece. **International Workshop on Applied Probability (IWAP2023)** **w** http://iwap2020.web.auth.gr/

July 10–14: São Paolo, Brazil. **16th CLAPEM: Latin American Congress of Probability & Mathematical Statistics** **w** https://www.ime.usp.br/~16clapem/

July 11–13: Peking University, Beijing, China. **Joint Conference on Statistics and Data Science in China** **w** https://www.stat-center.pku.edu.cn/en/Events/conference/1364567.htm

July 15–20: Ottawa, Canada. **ISI World Statistics Congress** **w** https://www.isi2023.org/conferences/ottawa-2023/

July 24–28: Lisbon, Portugal. **43rd Conference on Stochastic Processes and their Applications** **w** https://www.spa2023.org/

August 2023

August 2–5: Toronto, Canada. **IMS New Researchers Conference** **w** sites.google.com/site/linbowangpku/nrc-2023

August 5–10: Toronto, Canada. **IMS Annual Meeting at JSM 2023** **w** https://ww2.amstat.org/meetings/jsm/2023/

August 14–15: University of Virginia, USA. **Southeastern Probability Conference II** **w** https://services.math.duke.edu/~rtd

August 20–25: Tokyo, Japan. **ICIAM2023: 10th International Congress on Industrial and Applied Mathematics** **w** https://iciam2023.org/

September 2023

NEW September 7: London, UK. **7th IMA Conference on Mathematics in Defence and Security** **w** https://ima.org.uk/20850/7th-ima-defence/

UPDATED ONLINE September 11–15: Now online (previously advertised in Ljubljana, Slovenia. **23rd European Young Statisticians Meeting (EYSM) 2023** **w** https://sites.google.com/view/eysm2023

Continues on **page 34**

International Calendar *continued*

October 2023

NEW HYBRID October 3: London, UK, and online. **RSS Discussion Meeting: 'Parameterizing and Simulating from Causal Models' by Robin Evans and Vanessa Didelez** w https://rss.org.uk/training-events/events/key-events/discussion-papers/

NEW October 13–14: Washington DC, USA. **New Frontiers in Reliability and Risk Analysis: A Tribute to Nozer D. Singpurwalla** w https://statistics.columbian.gwu.edu/nds2023

November 2023

NEW November 9–10: Northfield, MN, USA. **NISS Ingram Olkin Forum (IOF) workshop: Statistical Challenges in the Analysis of Police Use of Force** w https://www.niss.org/events/iof-workshop-statistical-challenges-analysis-police-use-force

December 2023

ims December 18–21: Lisbon, Portugal. **2023 IMS International Conference on Statistics and Data Science (ICSDS)** w https://sites.google.com/view/icsds2023

January 2024

UPDATED ims January 4–7 (postponed from January 2021): Melbourne, Australia. **IMS Asia Pacific Rim Meeting (IMS-APRM2024)** w http://ims-aprm2024.com/

March 2024

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

June 2024

ims June 9–12: Fort Collins, Colorado, USA. **WNAR2024, joint with Graybill Conference** w https://wnar.org/meetings

July 2024

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

July 7–14: Sydney, Australia. **15th International Congress on Mathematics Education** w https://icme15.com/home

August 2024

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

UPDATED ims August 12–16: Bochum, Germany. **Bernoulli/IMS World Congress in Probability and Statistics** w https://www.bernoulli-ims-worldcongress2024.org/

August 2025

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

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: 2023

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 $130 is added to the dues of members for each scientific journal selected ($87 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.

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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 2023 are available to *The Annals of Applied Probability* ($245), *The Annals of Applied Statistics* ($245), *The Annals of Probability* ($245), *The Annals of Statistics* ($245), *Statistical Science* ($202), and *IMS Bulletin* ($115). **General subscriptions** are for libraries, institutions, and any multiple-readership use. Institutional subscriptions for 2023 are available to *The Annals of Applied Probability*, *The Annals of Applied Statistics*, *The Annals of Probability*, and *The Annals of Statistics* (each title $563 online only / $707 print+online), *Statistical Science* ($324/$403), and *IMS Bulletin* ($167 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.

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Advertising job vacancies: A single 60-day online job posting costs just **$355.00**. 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

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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 August 2023

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DEADLINES for submissions

July 1, then **August 15**

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

IMS: Organized September 12, 1935