IMS Bulletin

January/February 2025

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Mosteller Award to Susan Murphy

The American Statistical Association's Boston Chapter awards the **Mosteller Statistician of the Year Award** to recognize a distinguished statistician who has made exceptional contributions to the statistics field through research, teaching, and service to the statistical community, including to the ASA Boston Chapter. **Susan A. Murphy**, Mallinckrodt Professor of Statistics and Computer Science and associate faculty at the Kempner Institute of Harvard University, was honored with the award this year. She was recognized for her groundbreaking research, which focuses on improving sequential decision-making in health—currently in online, real-time learning algorithms for developing personalized digital health interventions.

Murphy is a member of the US National Academy of Sciences and US National Academy of Medicine (NAM). She is also a fellow of the college on problems in drug dependence. In 2013, she was awarded a MacArthur Fellowship for her work on experimental designs to inform sequential decision-making. She has impacted the real-world practice of clinical trials in medical and behavior science through her research, as well as through her efforts to promote adaptive interventions.

Murphy's service to the professional community is equally commendable. Her leadership as the former president of both the IMS and the Bernoulli Society, former editor of the *Annals of Statistics*, and former chair of the NAM Interest Group on Health and Technology, highlights her longtime dedication to the field. She has served on many committees and review panels and trained a number of students and postdocs, many of whom are now faculty in leading statistics departments.

Murphy's presentation at the award ceremony, titled *"Online Reinforcement Learning in Digital Health Interventions,"* showcased her research on developing data analytic methods, particularly online reinforcement learning methods, for personalized digital health interventions. She discussed two examples of clinical trials involving digital health care apps: HeartSteps and Oralytics. This talk illustrated how Murphy's integration of artificial intelligence with statistical methods is transforming health care interventions and advancing its future.

Read more about the history of the Mosteller award, and about Fred Mosteller's life and legacy, at https://magazine.amstat.org/blog/2024/12/02/murphywins/.

[This article is abridged from the version in the December 2024 *Amstat News.*]

The 2024 Mosteller Statistician of the Year award winner Susan Murphy (second from left) with Boston Chapter officers Olga Vitek, Wenting Cheng, Jianchang Lin, Lisa Mukherjee, and Maureen Mayer

IMS Bulletin

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IMS Members' News

UK Royal Society elects John Aston, Ingrid Daubechies

Professor Sir **John Aston** is Harding Professor of Statistics in Public Life at the University of Cambridge. Professor Aston is an applied statistician with particular interest in statistical neuroimaging, official statistics and statistical linguistics. He has methodological interests in functional and object data analysis, time series and image analysis, and spatial-temporal statistics. Aston also leads research into the use of quantitative evidence in public policy making, works with those in public life

Sir John Aston FRS

to ensure the best methods are used, and aims to improve the use of statistics and other quantitative evidence in public policy debates. Aston is a non-executive board member of the UK Statistics Authority and from 2017–20 was Chief Scientific Adviser to the Home Office and Director-General for Science, Technology, Analysis, Research and Strategy. He was a founding director of the Alan Turing Institute. He is a member of the London Policing Board and president-elect of the Royal Statistical Society, where he will serve as president in 2025–26. Prior to joining Cambridge, Aston held academic positions at the University of Warwick and at Academia Sinica in Taiwan. Aston was knighted in the 2021 Birthday Honours for services to statistics and public policymaking.

Also elected Foreign Member of the Royal Society this year was **Ingrid Daubechies**, a Belgian–American mathematician whose work focuses on applications of mathematics to a wide range of fields. Daubechies started her career in mathematical physics, branching out to signal analysis a few years after her Ph.D. Her construction of bases of wavelets supported on finite intervals not only solved fundamental mathematical problems, but also had a large impact on signal and image processing; some of her work is used in the image compression standard JPEG-2000. She has played a unique role in making wavelets a practical basic tool of applied mathematics with major impacts on medical imaging, remote sensing, and digital photography, and she has also introduced sophisticated mathematical techniques to art conservation and evolutionary biology.

Read more at https://royalsociety.org/fellows-directory/

Edward Kennedy receives 2024 Mortimer Spiegelman Award

Edward Kennedy, an associate professor in Carnegie Mellon's Department of Statistics & Data Science, received the Mortimer Spiegelman Award for his outstanding contributions to public health and statistics. Kennedy joined Carnegie Mellon University after graduating with a PhD in biostatistics from the University of Pennsylvania. Edward's research interests lie at the intersection of causal inference, machine learning, and nonparametric theory, especially in settings involving high-dimensional and otherwise complex data. His applied work focuses on problems in criminal justice, health services, medicine, and public policy. Edward is a recipient of an NSF CAREER Award, and the 2015 Thomas Ten Have Award for exceptional research in causal inference. Read more at https://www.cmu.edu/dietrich/news/news-stories/2024/september/spiegelman-kennedy.html

2024 Society for Industrial and Applied Mathematics Fellows

The Society for Industrial and Applied Mathematics (SIAM) has announced the 2024 Class of SIAM Fellows. These distinguished members were nominated in recognition of their outstanding research and service to the community. Through their various contributions, SIAM Fellows form a crucial group of individuals helping to advance the fields of applied mathematics, computational science, and data science. SIAM congratulates these 26 esteemed members of the community, among whom are two IMS members, **Art B. Owen**, Stanford University, and **Mark S. Squillante**, IBM Thomas J. Watson Research Center. Art Owen is recognized for *"seminal contributions straddling computational mathematics and statistics."* Mark Squillante is recognized for *"fundamental contributions to the mathematical analysis, modeling, control, and optimization of stochastic systems and their applications."*

In addition to raising the visibility of applied mathematics, computational science, and data science, the SIAM Fellows Program enhances the prospects of SIAM members for receiving awards and honors, and securing leadership positions in the broader society.

See the complete list of SIAM Fellows, pictured below, at https://www.siam.org/programs-initiatives/prizes-awards/fellows-program/fellows-directory/

2024 SIAM Fellows

International Statistical Institute elects members

The International Statistical Institute (ISI) has announced a new list of Elected Members, who were elected in the first three rounds of the 2024 ISI Membership Elections. Special congratulations to these IMS members/fellows among those elected, listed alphabetically by country:

- **Peter Radchenko** (Australia)
- **Dehan Kong** (Canada)
- **Mingyue Du** and **Wei Ma** (China)
- **Michael Baron**, **Tanujit Dey**, **Adrian Dobra**, **Irina Gaynanova**, **Donglin Zeng**, **Chunming Zhang**, and **Ting Zhang** (USA)
- **Frederick Phoa** (Taiwan)

Read more at https://isi-web.org/news-blogs

More IMS Members' News

Texas A&M University elects James O. Berger as Hagler Fellow

The Hagler Institute for Advanced Study at Texas A&M University has announced its largest class of Hagler Fellows. The 2024–25 class is comprised of 20 internationally renowned scholars. Among those selected is **James O. Berger**, Arts and Sciences Distinguished Professor Emeritus of Statistics, Duke University. Jim Berger is recognized *"for his work in Bayesian statistical analysis, decision analysis and uncertainty quantification."* Jim Berger is a member of the US National Academy of Sciences and the Spanish Real Academia de Ciencias. Berger will collaborate with faculty and students in the College of Arts and Sciences.

"These scholars are at the forefront of their disciplines and will make a profound impact at Texas A&M," said John L. Junkins, founding director of the Hagler Institute. "Their contributions will drive innovation, mentorship and academic collaboration, elevating our university's research environment and enhancing the student experience."

All Hagler Fellows are recognized for outstanding achievements in their fields. Each is a member of the National Academies or equivalent organizations. The fellows will work closely with Texas A&M faculty and students during their appointments, which generally last up to one year.

Read the complete list at https://today.tamu.edu/2024/09/24/hagler-institute-announces-largest-class-of-fellows/

As previously announced, Jim Berger gave the **29th Distinguished Statistician's Colloquium lecture**, sponsored by Pfizer, the American Statistical Association, and the University of Connecticut [*screenshot below*]. You can watch the video at https://www.youtube.com/watch?v=3gtd9-wjbBQ

Bhramar Mukherjee elected 2026 ENAR President-Elect

The 2025 Executive Officers of the Eastern North American Region of the International Biometric Society (ENAR) are **Paul S. Albert** (President), **Bhramar Mukherjee** (President-Elect; *pictured left*), **Reneé H. Moore** (Past President), **Alisa J. Stephens-Shields** (Secretary), and **Qi Long** (Treasurer).

More about ENAR: https://www.enar.org/about/index.cfm
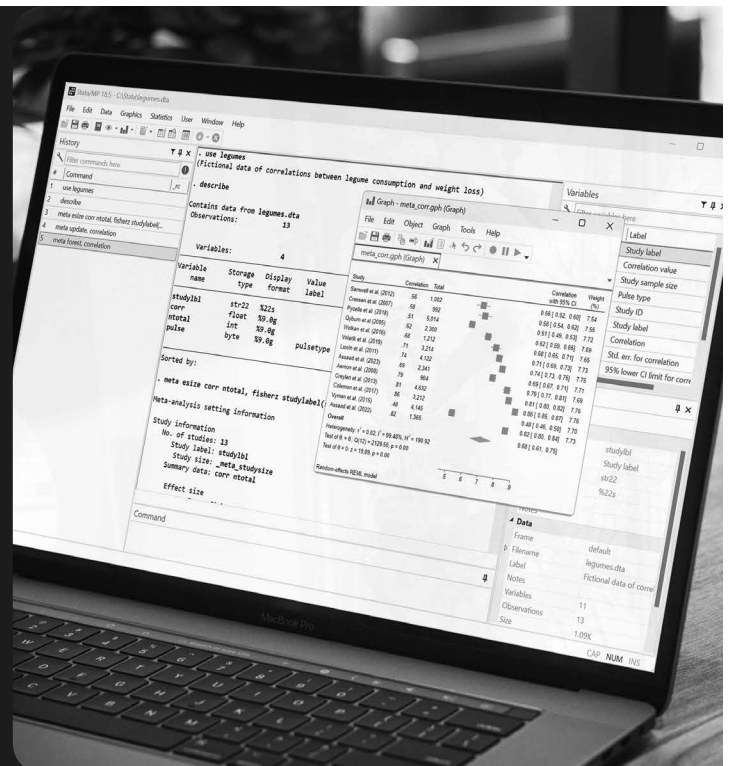
Radu's Rides: **On Timing**

Radu Craiu shares his thoughts about time, and about timing:

I like mechanical watches because they combine precise engineering—the movement is built under tremendous constraints that have to do with the minimalist space it is allowed to occupy and its efficiency under minimal friction (it's not lost on me that I just described an ideal politician)—and its outer aesthetics produced by true artistry. Beyond its beautiful form and time-keeping function, there is the wonderful sound it produces. Listening to a mechanical watch, one hears an almost perfect type of order that comes very close to the way we imagine real life should be: mostly regular but with an occasional anomalous ding that serves as a sober reminder and puts the remaining time in perspective. As a kid with unjustifiable insomnia, I used to fall into a very happy and deep sleep with my father's watch ticking in my ear.

Beyond the immanence of their aesthetics and sounds, for the adults in the room, watches are the constant reminder that timing plays a crucial role in life. Whether you're measuring heartbeats or keeping a beat, cooking a meal or feeding the parking meter, you know that your success, in great measure, depends on keeping track of seconds, minutes or hours. And in even greater measure, it depends on the serendipitous landing of whatever you're attempting in that propitious time interval that can span seconds, minutes or decades.

Even though we may not be physicians, musicians or chefs, I will argue that time and timing plays a crucial role in our professional lives too. For one, anyone who taught a non-trivial class will confirm that the wrong speech cadence can wreak havoc in most students' minds, while the right one will turn a lecturer into a "Rate My Professor" legend. Of course, content matters, but take the best argument out there, play it at two times the proper speed and witness the ensuing chaos. I dare say you will not need a watch to detect the rapid increase of blinking rate in your pupils' eyes.

And as a former student who had an inexhaustible ability to frustrate my professors, I can confirm that even procrastination requires some form of time-keeping, whether it's the slow movement of shadows on a ceiling or the barking of a dog who needs to go out from time to time.

Later in life we are facing those 20-minute conference talks, where one can contrast the 15-slide talk, during which the speaker has time to pronounce all syllables and finish most sentences, with the 60-slide one that the speaker has prepared with the firm belief that time will stand still in order for these ideas to be fully conveyed to a mesmerized (pronounced as "stupefied") audience.

Changing time scales, research timing is perhaps one of the most spectacular things I have witnessed in my career. Short of being the one that launches an entire research topic—and how many people like that do you know?—the next best thing is to catch the new shining idea as both you and it are leaving the world in the dust. Whether it is because your PhD advisor made an off-hand remark, or you had a hunch that made you spend two years on a paper that was cited only by the author's (academic) family, or simply because you found an intriguing couple of pages in the washroom, it doesn't really matter… because as far as timing is concerned you're dancing to the right beat. For those who are confused by what I mean, I'll say that if I had a dollar for every time I heard the expression "the low-hanging fruit" in a research context, I could buy a Patek Philippe and still have money for a fruit salad.

We often think of time as working against us—*"I wish there were 30 hours in a day so I could write more papers"*—which is understandable in the current climate in which household-name researchers are publishing 30 to 60 papers a year. Even so, I would like to propose an attitude reversal, in which time is what it takes for a good idea to ripen and bear fruit, be it low-hanging or not.

As I get older, I realize that time pressure is a social game. Rarely do I feel pressured by the ticking watch when I am alone at my desk. Far be it from me to suggest that the way of living time-wisely is to imagine that one is always alone. Perhaps a friendlier piece of advice is to really listen to that mechanical watch I hope you are still carrying around at all times, and realize that the seconds are ticking just the same whether you have three or 30 slides to cover in the remaining four minutes.

One of my good friends, an applied mathematician otherwise (no one is perfect), has the habit of slowing me down every time I come to him with a problem or an idea. And in that short period of time between his halting words and my catching of breath, something miraculous happens: I realize that I need more time to think things through.

Wikimedia Commons / Michel Villeneuve
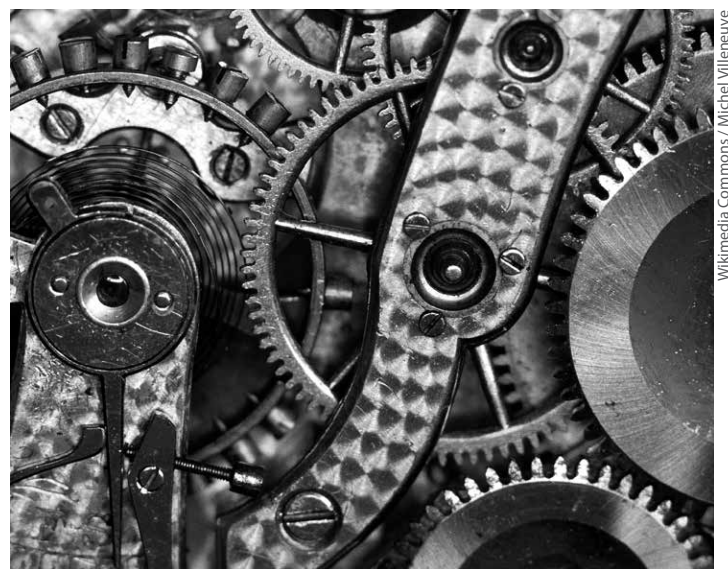
Report: IMS–CANSSI event at JSM

Shili Lin, Ohio State University, is the chair of the CIMEP working group (the mentoring and engagement program run by IMS and the Canadian Statistical Sciences Institute, CANSSI). She reports:

The inaugural joint IMS–CANSSI mentoring and networking event took place on Monday, August 5, at JSM 2024 in Portland, Oregon. This was a direct result of both IMS and CANSSI (the Canadian Statistical Sciences Institute) being highly committed to serving the community and nurturing statisticians to be successful in their careers, and of the dedicated effort by members of the **CANSSI–IMS Mentoring and Engagement Program (CIMEP)** working group.

The session was organized into two halves. The first half was a moderated panel discussion, in which seven panelists with excellent credentials at multiple career stages from academia, industry, and beyond provided their perspectives on questions such as:

- *"How did you decide what setting (academia, industry, beyond) you wanted to work in?"*
- *"How have your responsibilities and the way you spend your time changed throughout your career?"*
- *"When new opportunities present themselves, how do you decide what to say yes to?"*
- *"How do you find work/life balance?"*
- *"What skill sets are important to possess in order to navigate promotion and being successful in one's career more generally?"*

After the panel discussion, the participants were split into small groups for more in-depth and targeted discussion, with each group led by a panelist. All participants participated in the lively conversations happening across the room, asking questions and providing their own perspectives.

Overall, from anecdotal information gained through chatting with some participants and panelists after the event, it is felt that by pooling resources and combining efforts, IMS and CANSSI are making a greater impact in the respective societies and the wider statistical community.

The Panelists: John Eltinge (Census Bureau), Ilya Hekimi (Statistics Canada), Saman Muthukumarana (University of Manitoba), Bouchra Nasri (Université de Montréal), Layla Parast (UT Austin), Jose Pinheiro (Johnson & Johnson), and Bin Yu (UC Berkeley).

The CIMEP group members: Andrea Benedetti (McGill University), Jessica Gronsbell (University of Toronto), Shili Lin (Ohio State University), Nicole Pashley (Rutgers University), and Ali Shojaie (University of Washington).

The CIMEP group is continuing to work on planning future offerings of member engagement events. Stay tuned!

Participants in the session asked questions of the panelists

Ying Jin: Lawrence D. Brown PhD Student Award lecture preview

Ying Jin is currently a Wojcicki Troper Postdoctoral Fellow at Harvard Data Science Initiative, working with Professors José Zubizarreta and Marinka Zitnik at Harvard Medical School. Her research centers around conformal prediction, distribution-free inference, generalizability, distribution shifts, selective inference, and their applications in biomedical discovery and human decisions. In Fall 2025, she will join the University of Pennsylvania as an Assistant Professor of Statistics and Data Science at the Wharton School. She obtained her PhD in Statistics from Stanford University in 2024, advised by Professors Emmanuel Candès and Dominik Rothenhäusler. Prior to that, she obtained a B.S. in Mathematics from Tsinghua University in 2019. Ying's talk will be in the Brown Awards session at JSM Nashville, August 2–8, 2025.

Model-free selective inference with conformal prediction

Artificial Intelligence (AI) has revolutionized decision-making and scientific discovery in fields like drug discovery, marketing, and healthcare. To ensure the reliability of AI models in high-stakes scenarios, uncertainty quantification methods such as conformal prediction aim to build prediction sets covering unknown labels of new data to quantify the confidence in predictions from these models. These methods typically provide on-average (marginal) guarantees which, despite being useful, can be insufficient in decision-making processes that usually come with a selective nature. For instance, in drug discovery, practitioners are often interested in identifying a subset of promising drug candidates rather than assessing an "average" instance.

This talk introduces Conformal Selection, a novel framework that offers selective inference capabilities to conformal prediction to address these challenges. We primarily focus on applications where predictions from black-box models are used to shortlist unlabeled test samples whose unobserved outcomes satisfy a desired property, such as identifying drug candidates with high binding affinities to a disease target in early stages of drug discovery (virtual screening). In drug discovery, conformal prediction has been applied to build prediction intervals for the unknown labels of new drug candidates, which are then used to identify promising ones before costly experimental validations. However, these approaches neglect the selection bias that

may occur in such data-driven decisions. The proportion of false leads in shortlisted drug candidates is typically much higher than the nominal level for an average candidate, incurring unwanted waste of resources in subsequent investigations. This issue is the well-recognized winner's curse in classical statistical inference.

Conformal Selection allows the use of any black-box prediction model to identify unlabeled samples whose unobserved outcomes exceed user-specified values, while controlling the average proportion of falsely selected units (FDR). Leveraging a set of labeled data that are exchangeable with the unlabeled test points, our method constructs conformal p-values that quantify the confidence in unobserved large outcomes for each test sample. It then uses the Benjamini–Hochberg (BH) procedure to determine a data-dependent threshold for the p-values as a criterion for making confident selections. We show that even though the conformal p-values are dependent, as they rely on the same set of labeled data, their favorable positive dependence enables finite-sample, distribution-free FDR control. We show that in several drug discovery tasks, our methods narrow down the drug candidates to a manageable size of promising ones while controlling the proportion of false leads.

The most important assumption in Conformal Selection is that the test data must be exchangeable with the labeled data. However, in real scientific discovery and

decision-making problems, new data often differs from those in the training set. For instance, new drug candidates may have distinct scaffolds than the known drugs. To address this challenge, we further introduce a Weighted Conformal Selection procedure. Assuming a covariate shift between unlabeled test samples and labeled training data, it builds weighted conformal p-values that remain valid for testing a single large outcome under the covariate shift. However, we prove that the favorable positive dependence among these p-values no longer holds. We then develop a new multiple testing procedure that calibrates individual selection thresholds for these p-values to ensure finite-sample FDR control. We also discuss certain robustness properties of the procedure when the covariate shift is estimated from data.

We apply Weighted Conformal Selection to several biomedical discovery tasks with realistic distribution shifts, using the hidden embeddings from deep learning prediction models as covariates. We demonstrate that Weighted Conformal Selection achieves FDR control while effectively adjusting for distribution shifts that arise from scaffold splitting of small molecules, temporal shifts in clinical experiments, synthetic sampling with generative AI models, and protein design with mutant revisions.

This is based on my PhD work with Emmanuel Candès.
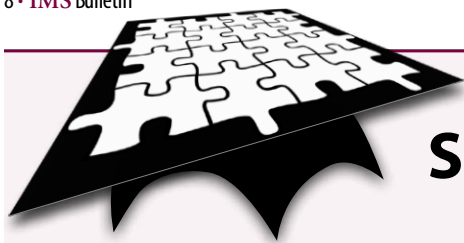
Student Puzzle 54

This time we have a guest puzzle editor, Stanislav Volkov, who is Professor of Mathematical Statistics at the Centre for Mathematical Sciences at Lund University, Sweden. (Anirban DasGupta will return with the next puzzles).

Here is Stanislav's puzzle:

Puzzle 54

Let $T_n = Y_1 + Y_2 + \ldots + Y_n$ be a "random walk" in the sense that $Y_i = \pm 1$ and $\mathbb{P}(Y_i = 1) = p$ for all i. What is the minimum and the maximum of the variance of T_n over all possible joint distributions of $(Y_1, \ldots, Y_n)$ that can be achieved? (Note that we do not assume that Ys are independent.)

Student members of IMS are invited to submit solutions to bulletin@imstat.org (subject "Student Puzzle Corner"). If correct, we'll publish your name (and photo, if there's space), and the answer, in the next issue.

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

Solution to Puzzle 53

Pictured right are IMS student members **Andrew Czeizler** (University of New England, Australia), **Radmehr Karimian** (Columbia University), and **Reihaneh Malekian** (Columbia University), who sent [mostly] correct and serious answers, and did a fine job. Congratulations to them!

Puzzle editor Anirban DasGupta explains:

Andrew Czeizler

Radmehr Karimian

Reihaneh Malekian

Puzzle 53.1

Suppose X has a Poisson distribution with mean one. Prove that the distribution of X is determined by its moments, i.e., if Y is any real valued random variable such that $E(Y^n) = E(X^n)$ for all $n = 1, 2, \ldots$, then Y has a Poisson distribution with mean one.
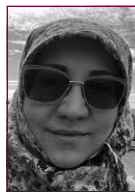
The MGF of any Poisson distribution exists for all values of t. If a distribution on the real line has an MGF in a nonempty neighborhood of zero, then it is determined by its sequence of moments. Alternatively, the nth moment of a Poisson with mean PNE is the nth Bell number B_n. It can then be proved that $\sum_{n=1}^{\infty} B_{2n}^{-1/(2n)} = \infty$, and this implies that the Poisson distribution with mean one is determined by its moments.

Puzzle 53.2
(Multi-part contest questions: answer true or false)

(a) If X is a non-negative random variable, and has a finite MGF everywhere, then $E(X^X) < \infty$.

False. The Poisson with mean one is a counterexample.

(b) For estimating the variance of a normal distribution with an unknown mean, the MLE of the variance is inadmissible under squared error loss function.

True. A better estimator is $\frac{1}{n+1} \sum_{i=1}^{n} (X_i - \bar{X})^2$.

(c) Suppose $X_1, X_2, \ldots$ are i.i.d. Poisson with mean one. Let $S_n = \sum_{i=1}^{n} X_i$, $n \geq 1$. Let N be the first n for which $S_n > 1$. Then $E(S_N - 2) \leq 1$.

True. Just note that $P(N > n) = P(S_n \leq 1)$, and that $S_n \sim \text{Poi}(n)$. Now use the tailsum formula to calculate $E(N)$, and hence, $E(S_N)$.

(d) Suppose X is uniformly distributed in the p-dimensional disk $\{x : \|x\|^2 = \rho^2\}$. Treat ρ as an unknown positive parameter. Then the bias of the MLE of ρ converges to zero when $p \to \infty$.

True. This follows from a straightforward calculation of the density of $\|X\|$.

(e) Consider a 2×2 random matrix in which all four entries are i.i.d. standard normal. Then the probability that the determinant of this matrix exceeds 1 is an irrational number.

True. If X, Y, Z, W are i.i.d. standard normal, then $XW - YZ$ has a standard double exponential distribution. So the probability that the determinant in question is larger than 1 is e^{-1}.

The IMS New Researchers Group

The New Researchers Group (NRG) exists under the auspices of the Institute for Mathematical Statistics (IMS). It was founded following the 2014 New Researchers Conference, hosted by Harvard University. Many of the attendees at the conference were eager to continue the exciting conversations they had there and to foster collaborations and career development for young statisticians.

Currently, the NRG Committee focuses on ensuring the continuance of the New Researchers Conference, establishing and enhancing a robust web presence, and fostering new ways for young researchers to meet, collaborate, and share their experiences.

NRG is open to any IMS member but is tailored to members within 10 years of completion of their doctorate degree.

The current NRG President is **Armeen Taeb** (University of Washington). The NRG Leadership Committee members are: **Satarupa Bhattacharjee** (University of Florida); **Dan Kessler** (University of North Carolina at Chapel Hill); **Eardi Lila** (Treasurer, University of Washington); **Pawel Morzywolek** (University of Washington); and **Xinwei Shen** (ETH Zurich). The previous NRG President (for 2022–24) was **Pragya Sur** (Harvard University); and before that (2017–19) **Alex Volfovsky** (Duke University).

The stated aims of the Group are:
- To promote and provide a forum for early-career researchers;
- To encourage membership for early-career researchers in the IMS;
- To organize conferences, workshops, and sessions in other meetings; and
- To provide social networking tools for early-career researchers in order to discuss research, exchange ideas with each other, and connect with the community at large.

To that end, among recent NRG-organized or hosted events are:
- A **lunch mixer** during the IMS ICSDS (International Conference on Statistics and Data Science), in December 2024 in Nice, France. The purpose of this event is to foster a sense of community among young researchers and help them build a professional network;
- The 24th Meeting of New Researchers in Statistics and Probability, a.k.a. the **New Researchers Conference**, held August 1–3, 2024, at Oregon State University;
- The **Preparing to Teach** workshop (officially "8th Preparing for Careers in Teaching Statistics and Data Science Workshop"), held on August 3, immediately before JSM, and organized by the ASA's Section on Statistics and Data Science Education.

Coming up in 2025

Forthcoming events in 2025 include:
- An **invited session at JSM Nashville**, titled "The interplay of statistics, optimization, and geometry for modern data science". Speakers are junior researchers Ashwin Pananjady, Cong Ma, Kaizheng Wang, and Eliza O'Reilly.
- The 25th **New Researchers Conference** and 9th **Preparing to Teach** workshop, held at Vanderbilt University immediately before JSM 2025.
- We also plan to have an **NRG invited session at ICSDS 2025**.
- A conference, planned to be a **European counterpart to the New Researchers Conference**, co-located with ICSDS in December 2025.
- **Online webinars** tailored for new researchers in statistics, such as panels on job markets or on grant writing, etc.
- Regular **mixers** at various statistics conferences.

Stay tuned for more information on these events as plans evolve on our website, https://www.imsnrg.com.

The NRG has a new YouTube channel, at www.youtube.com/@imsnrg. You can watch a recording of the recent **Virtual Panel on Navigating the Academic Job Market.** The panelists were: Lihua Lei (Stanford), Shuangning Li (Chicago Booth), Anna Neufeld (Williams College), Kevin Lin (UW), Aaditya Ramdas (CMU), Genevera Allen (Columbia), and the moderator was Dan Kessler (UNC).

Other webinar recordings are at https://www.imsnrg.com/past-events

Great, how do I join?

The IMS New Researchers Group is open to any IMS member (but is tailored to members within 10 years of completion of their doctoral degree). To join, login to your IMS account at https://members.imstat.org/Public. Once logged in, go to "Subscribe Now" and select "New Researchers Group." You can also select it when you renew or join the IMS. This will add you to a group email list, with an opt-out option.

The Young Statisticians Europe initiative

Andrej Srakar, Institute for Economic Research, Ljubljana, Slovenia, is coordinator of the YoungStatS project, part of the Young Statisticians Europe initiative. He writes:

The Young Statisticians Europe (YSE) initiative was founded in Paris in 2018, at a three-day international workshop that was organized by three young French scholars (https://www.sfds.asso.fr/en/events/629-european_workshop/). Since YSE's start in Paris, several young sections of national statistical societies across Europe,

The Young Statisticians Europe logo, by Elena Prada

members of the Federation of European National Statistical Societies (FENStatS), have been the most active, in particular French, Italian, Romanian, Irish, Belgian and Slovenian. Several internationally very active young scholars from Finland, Austria, Greece, Denmark, Hungary and Spain have also been present in the initiative since the beginning.

In subsequent years, YSE initiative organized two additional joint conference meetings, in 2019 in Bucharest, and in 2021 in Slovenia. We also organized several sessions at the international conferences. At our meetings we feature scholarly sessions with presentations by young scholars, as well as extended sessions for debates on the present topics of the initiative.

During the second YSE meeting in Bucharest in 2019, I presented a proposal of a blog and webinar project for younger scholars, called YoungStatS. This project was initiated during the World Statistics Day on October 28, 2020, and opened by Dr.

Walter J. Radermacher, who was at the time president of FENStatS.

YoungStatS receives support from the Bernoulli Society for Mathematical Statistics and Probability, as well as the Institute of Mathematical Statistics (IMS). We cooperate with many young scholar initiatives around the world. YoungStatS includes a blog and the One World webinar series, including cooperation with the IMS New Researchers Group [*see article on previous page*] and Young Data Science Researcher Seminar Zürich. Our webinar series and blog posts have featured a high number of leading younger and more senior scholars and covered topics at the cutting edge of scholarly developments.

In recent months, Young Statisticians Europe initiative has been highly active on its formal structure and we are about to elect our leadership. Our new structure would include representatives from countries of Austria, Belgium, Cyprus, Czech Republic, Finland, France, Hungary, Ireland, Italy, The Netherlands, Portugal, Romania, Slovenia, Spain, Switzerland and United Kingdom. Based the fact that statistics, data science and probability are in the forefront of scientific and societal attention, we are planning ambitious projects and activities for the future, which could span to include many theoretical, applied or practical topics, oriented to young scholars and young statisticians in general.

If you are interested in our activities, please write to us and/or join our Facebook and LinkedIn groups or join our meetings, summer schools, hackathons, webinars and so on. Naturally, do continue also to follow our YoungStatS project activities—both blog posts and webinars. Our focus is not limited to Europe: anyone in the world is more than welcome to participate in the initiative.

You can find out more about YSE at the following links:

- https://www.fenstats.eu/YSE
- https://www.linkedin.com/company/young-statisticians-europe/about/
- https://www.facebook.com/groups/youngstateurope/

...and about YoungStatS at:

- https://youngstats.github.io/about/

The opening of the YoungStatS project of the YSE initiative in 2020
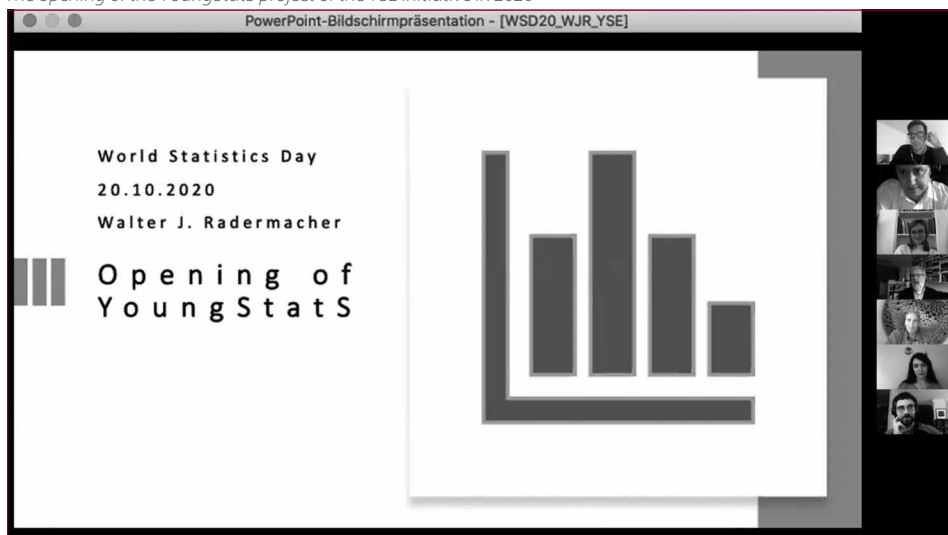
OBITUARY: William Strawderman

1941–2024

William (Bill) Strawderman, a brilliant mathematical statistician and a wonderful colleague and leader, passed away on October 1, 2024.

Born on April 25, 1941, Bill received a BS in Engineering Mathematics from University of Rhode Island in 1963, an MS in Mathematics from Cornell University in 1965, and an MS and PhD in Statistics in 1969 from Rutgers University under the direction of Arthur Cohen. He spent his entire professional career at Rutgers University, from 1970 to 2022 when he became Emeritus. As a Distinguished Professor of Statistics and a world-renowned leader in decision theory and Bayesian analysis, he was known in the research world for his ingenious creativity and rigorous mathematical prowess. He received numerous awards including fellowship of the American Statistical Association and the IMS, and election as a member of the International Statistical Institute. He was a keynote speaker for numerous major international conferences, delivering many prestigious lectures, including an IMS Medallion Lecture. Among his colleagues he was revered for his integrity, geniality, wisdom, and an unending passion for statistics.

Bill held an overlapping appointment with the National Institutes of Standards and Technology, an overlapping adjunct position at the University of Medicine and Dentistry of New Jersey, and consultant positions with pharmaceutical companies.

At Rutgers, Bill served as department chair between 1977–83, and again from 1989–92. He was instrumental in building up Statistics into the leading department it is today. His gentle demeanor, charisma, wisdom, and powerful, creative arguments made him an effective leader, in front of administrators and his colleagues. His was a voice always to be listened to.

Bill's contributions to statistics were both fundamental and profound. The author of two books and more than 220 papers, Bill made deep and influential contributions to statistical decision theory, multivariate analysis and Bayesian analysis, all with lasting impacts. His contributions to estimation theory concerning admissibility, minimaxity, Bayesian estimation, multiparameter shrinkage, and estimation under concave loss functions and restricted parameter spaces were novel, important, groundbreaking and timely. In particular, Bill was the first to provide proper Bayes admissible minimax shrinkage estimators of a multivariate normal mean, introducing the now-pervasive class of prior distributions, which have come to be known as the Strawderman priors. Beyond his many theoretical contributions, Bill also made substantial, valuable contributions to applications in ecology, resource management, and interlaboratory testing.

Bill was known to be an inspiring and caring teacher. He supervised numerous students, many of whom are now prominent scholars. His collaborators spread to many continents. Bill devoted his time and effort to serving the statistics profession, including as IMS Council member, Chairman of the SBSS Section of the ASA, and as Associate Editor of several leading statistical journals.

Bill was an accomplished musician, playing clarinet and several other instruments. He became All-State clarinet for Rhode Island while in high school, and then in college he became the drum major of the marching band and first chair clarinet of the concert band. A source of great enjoyment throughout his entire life, Bill played in bands with a solid following for many years.
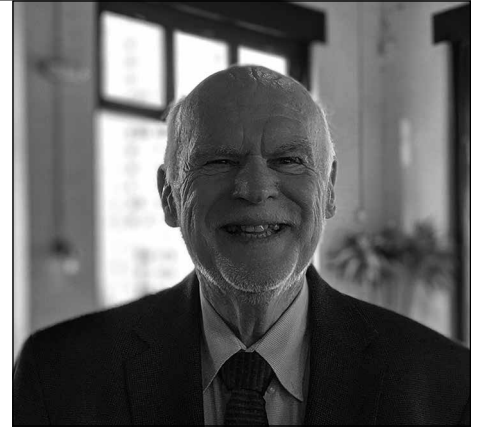
William (Bill) Strawderman

Bill will be greatly missed for his enormous intellect, wisdom, kindness, and optimism. He is survived by four children and their spouses: Rob and Myla Strawderman, Bill and Jinny Strawderman, Heather and Jim Marx, Kay LiCausi and Matt McDermott; six grandchildren he adored; Will, Tommy, Evan, Emma, AJ and Lily; and a sister-in-law Nancy Strawderman.

In tribute to Bill's memory, the Rutgers flag in front of the Old Queens Building in New Brunswick will be lowered to half-staff on February 3 and 4, 2025. A memorial celebratory research conference with colleagues, students and family members will be held in Bill's honor at Rutgers University in the Spring of 2025. The Department of Statistics at Rutgers University, working with Bill's family, will establish a named graduate fellowship in honor of Bill's devotion to mentoring students. To contribute, please visit https://give.rutgersfoundation.org/strawderman/23763.html. To send your donation by check, please write it to Rutgers University Foundation (allocation Strawderman Fellowship #23763) and mail to Rutgers University Foundation, P.O. Box 193, New Brunswick, NJ 08903-0193. Please reach out to Rong Chen at rongchen@stat.rutgers.edu or Michal Tyra at michal.tyra@rutgersfoundation.org for any questions.

Written respectfully by Ed George, Martin Wells, and Bill's colleagues at the Rutgers Department of Statistics.

XL-Files: Seeking simplicity in statistics and complexity in wine (Part 1)

As you may recall from the previous issue, Xiao-Li Meng promised to reveal how a statistician like him found a path to partnering with leaders in the wine industry. All will be revealed in this and the following two installments of the XL-Files. Here, we are reprinting—with permission and with some variations—Xiao-Li's first publication in a wine magazine, FONDATA, titled *Seeking simplicity in statistics, complexity in wine, and everything else in fortune cookies.* As Xiao-Li says, "Great wine is meant to be shared and savored with reflection. This bottle pours in three glasses. Cheers!"

Wine and Statistics?

"Since statistics is applicable to almost anything, why not teach a class applying statistics to wine?" Such was the question posed by Wee Lee, a stat—you guessed it—student over an unmemorable bottle during a post-seminar reception back in 2005. Post-seminar receptions are common in academia. They are intended to encourage informal discussions inspired by the seminar, although sometimes I wish that the wines were served before the seminar. The speaker could then be more inspiring, or at least one could blame the wine for the snoring heard throughout the talk. Wee Lee was clearly inspired by the intermingling of wine and statistics, even though the seminar was as unmemorable as the bottle.

How could I have said no to such an inspiration, especially when I had just acquired half of a wine club's inventory through a liquidation sale? As a pure academic, I was not then and am not now commonly given the resources or opportunity to acquire any fraction of any wine club's inventory, *if* the club owner took some statistics courses and understood the risk of running a business. But a club's loss is an academic's gain, the latter of which was increased by the wine club salesman's appreciation of my curiosity about everything wine. "I'd rather give all the remaining bottles to someone who appreciates wine for two dollars a bottle, than have

them confiscated tomorrow," he remarked. It was a subzero evening, but the salesman's resentment of some prospective almighty confiscator added a couple of real zeros to my wine budget. It's unclear if the "two dollars a bottle" qualification was his offer or valuation of my appreciation level. But either way, I joined—or rather, closed—the club, in a serendipitous turn of events for a wine-connoisseur-wannabe that ultimately became a singularity for a stat-pedagogue would-be.

(No, you are not tipsy. Yes, this is a story of mixology of enology and pedagogy. Pour yourself another full glass and sip slowly to give me time to regale you.)

Naturally, I could not possibly have kept all this fortune to myself. Lucky fortune cookies are meant to be shared, just as are memorable bottles—memories last far longer by having multiple copies. As a statistics professor, how could I have found a more appropriate use of my newfound fortune than to enhance the lovability of my beloved subject? In case you are not sufficiently aged to appreciate this rhetorical question, there was a time when the answer "I teach statistics" was a very effective turn-off line whenever I was too tired to converse with a taxi driver or a fellow passenger. That effectiveness naturally provoked me. How could statistics be taught in such a way that someday that line would be an invitation?

There was also a time when the concept

of a wine cellar was, well, just a concept. I had to move a car out of my garage during that winter when the salesman drove a loaded car into it with almost flat tires. I then moved the bottles into a basement closet as temperatures rose. Attempting to control the temperature in the closet, I installed something that I would rather not disclose unless I want to lose any remaining credibility.

Retrospectively, my laughable attempt could not be a more potent reminder of the critical importance of broad education. As a major in pure mathematics, I had ventured into only one "impure" course during my college years: "Mathematical Equations for Physics." My descent into impurity prompted inquiry on the part of a few pure-math professors: "Why did you take *that*?" Of course, they could not have possibly anticipated or understood that even these impure equations did not prepare me for a simple thermodynamic application in real life. I hope that the generous salesman who delivered the bottles will never read this partial confession of torturing his two buck chucks, and hear their whining, "Drink me now, please, to put me out of this misery…"

I, of course, would not do the same to my students. Wee Lee's inspiration ultimately led to a General Education course at Harvard: *Real-Life Statistics: Your Chance for Happiness (or Misery).* (As a considerate

professor, I always give my students' choices to accommodate their preferences.) Traditional intro-level statistical courses arrange the content by mathematical and statistical difficulty and bring in stylized examples to illustrate how to apply formulas and carry out computation. The "Happy Course" breaks with this longstanding, common practice, literally and figuratively. The course offered six modules—Romance, Finance, Medical, Election, Legal, and Wine and Chocolate—made possible by my "Happy Team," a group of graduate students who worked (e.g., dined and wined) with me to develop and deploy the Happy Course. Many pedagogical ideas were fermented over equally many bottles and reified through experiments conducted over several years. Statistical ideas and methods are brought in only when they are needed to address real problems. (In case you want to be amused by "unreal" problems in some stat textbooks, imagine a shoe store owner interested in knowing only the *average shoe size* the store carries.) This led to the ordering and presentation of technical materials that were unacceptable in the traditional framework.

For example, to understand how "romantic regression"—a Freudian slippery term as romance rarely can escape from its slippery regressing slope—is employed by online dating sites to find your soulmate, the Happy Course introduced logistic regression, used to predict match versus no match, before linear regression. Linear regression is almost always taught before logistic regression in statistics because mathematically the straight lines are easier to teach and understand than the non-linear logistic curves. The concept of linear regressions is used extensively in finance, among many subjects. For example, the notion of high alpha and low beta stocks is built on the intercept (alpha, a measure of return) and slope (beta, a measure of risk) of a linear regression. Seekers of romance may indeed need to learn about linear regression

first because money can help to prolong a romance even if it cannot buy one. But the argument that finance must come before romance, because of the mathematical ordering from line to curve, would hardly spark any interest, let alone love, from those students who fear anything mathematical in the first place.

And yes, there are plenty of students—and indeed faculty and deans—at every university and college who consider math to be synonymous with "aftermath." Teaching stat as a math subject has undoubtedly helped to turn an otherwise intoxicating subject into a conversation terminator, at least before the term Big Data became a headline.

Wine can help, as usual. Some of the most difficult conversations that I had to engage in with my colleagues, in my role as a department chair or graduate school dean, were made a bit more palatable by a bottle or two. Bringing wine into classrooms to ease some fear of math, then, is not a far-fetched idea, especially with the help of the Happy Team. Of course, as a reminder of the statistical wisdom to always expect a bit of everything, I underestimated both the joy generated and the job required by this singular adventure in statistical education.

Wine Tasting and Testing

Wine tasting provides a pedagogically engaging activity to demonstrate the essences and importance of experimental design, a gold standard for making causal conclusions, from clinical trials for treatment efficacy to safety assessments of autonomous vehicles. The myriad of factors influencing wine quality and consumer preference require heedful designs to differentiate and distill them scientifically. Sharing my fortune via wine tasting therefore was almost my first thought upon hearing Wee Lee's proposal.

As it happened, the half club I inherited consisted of mostly German Riesling, with every possible level of sweetness,

from Kabinett to Trockenbeerenauslese. Common wisdom has it that Riesling tends to be the favorite for newbies to wine, or at least the most easily accepted because of its pleasing sweetness. Having introduced several colleagues and friends to the world of wine, my anecdotal observations supported that wisdom. However, anecdotes are not scientific data. If sweetness is an attractor, then it might induce different level of preferences for the different types of the Riesling. To test if this hypothesis is reasonable, one may conduct a wine tasting. But to make it scientific, one must adhere to several principles of experimental design. The obvious one is that it needs to be a blind tasting, just as clinical trials need to be double-blind (i.e., neither patients nor doctors are informed about which patients receive which treatments) whenever feasible. This principle of blindness is to ensure that our scientific vision is not blurred by our judgment's vulnerability to, for example, label information or price tag. Wine tasting perhaps has the most dramatic and consequential testimony to offer to support this principle. It would take unimaginably many bottles to imagine that the 1976 Judgment of Paris would have reached the same verdict, one which revolutionized the wine world, if it were un-blind.

The principle of randomization, however, might be less obvious because many people equate randomness with haphazardness. In experimental designs—and in all statistical theory and methods—randomization is the opposite of a haphazard process because randomization means the process is under human control and we know precisely what can happen and how frequently it happens. A typical randomization requires that everyone, or every possibility, be given an equal chance. For comparing different wines, the order of tasting can influence our judgment. ("Never serve your trophy as the third bottle" was a piece of advice given to me last century over a most memorable lunch, but perhaps not to the host, who

XL-Files: continued from page 13

ultimately thought his office was his bedroom). A well-designed tasting experiment therefore will assign approximately the same number of tasters to every possible order. In the Happy Course's Riesling tasting, we served three kinds of wine (with all bottles wrapped), resulting in six possible orderings. We had 23 tasters, and hence each order was given to four tasters except for one — see the accompanying photo [right] and slide [below].

(It is probably a good test to see if you need another glass: can you immediately tell which order was the exception?)

The slide was from the actual lecture, where the table documented the average rating for any wine-order combination. I'm not showing the rest of (many) slides, which would easily be your reading terminator. But if your glass still is half full, I'd invite you to pair the half glass with a half number game: What can I conclude from these numbers? Let's see. Looks like there is an ordering effect, since the two highest average ratings all occurred in the first row. But then the second lowest average

rating also occurred in the first row. Wait. The whole Spätlese column received the three lowest ratings, and the first and second average ratings are much closer than that of Kabinett or Auslese. Perhaps then it is OK to declare an ordering effect since these averages were all based on a handful of tasters, and hence we should permit some degree of give-or-take? But what degree is acceptable, and how would that be determined?

Well, that's why I invited you to play only a half number game, because these averages don't tell the whole story. How much give-or-take should be allowed will depend on how individual ratings differ from the averages (or equivalently from each other). The more they differ, the more give-or-take results; larger individual differences suggest rather different preference ratings if we had different 23 tasters, or even the same 23 tasters with the same tasting

The tasters tested three kinds of Riesling, in different orderings

but for a different ordering assignment. Hence, we need to give ourselves more slack to reduce our overconfidence from a single experiment, however scientific it might be.

In case my stat preaching is getting you dizzy (instead of tipsy), let me stop here to say that the actual statistical analysis is simpler and less confusing than ad hoc number games because they follow well specified probability rules and can be carried out by computer (but of course only in the hands of sober trained professionals). As a matter of fact, the whole idea of statistical analysis and more broadly data science is to help humans navigate mind-boggling "number games" created by complex problems— judging wine quality and understanding consumer preferences is one of them. We can then see the big picture and act on essences, instead of getting lost in a maze or jungle. Through pedagogical activities such as wine tasting, the students in the Happy Course got a direct taste of how real-life statistics help to reveal simplicity within and from complexity, a process—perhaps ironically—not unlike seeking complexity out of seemingly simple fermented grape juice, because both processes require training, practicing, understanding, judging, and a bit of luck.

What can be deduced from this data?

Data on Average Ratings (1-7)		Wine Style		
		Kabinett	**Spätlese**	**Auslese**
Order tasted	**1st**	5.25 (n=8)	4.00 (n=7)	5.63 (n=8)
	2nd	4.38 (n=8)	4.25 (n=8)	4.86 (n=7)
	3rd	4.86 (n=7)	3.25 (n=8)	4.75 (n=8)

Each cell shows the mean rating (1-7) given to a particular wine when tasted in a particular order.

Number in parentheses = # of observations

The next XL-Files features an experiment with a double dose of happiness: wine… AND CHOCOLATE!

Rousseeuw Prize 2024 Presentation

David J. Hand, Imperial College London, chaired the selection committee for the 2024 Rousseeuw Prize, awarded as previously announced to **Yoav Benjamini, Ruth Heller and Daniel Yekutieli** (with posthumous acknowledgment to Yosef Hochberg). David gave the following speech at the award presentation.

Introduction

I was honoured to be asked to chair the selection committee again. I would like to say how grateful the statistical community is to Peter Rousseeuw for establishing this prize. And to thank the administrators, who promote, advertise, and solicit nominations, and my fellow selection committee members for our discussions on who should be awarded this year's prize.

The *Nobel* Prize was established in 1895, for the disciplines of physics, chemistry, physiology or medicine, literature, and peace. A sixth prize for economics was established in 1969. The Turing Prize for computer science was launched in 1966. The Abel Prize for Mathematics was established in 2001. But the gaping lacuna in that list is difficult to miss. Statistics—the discipline of extracting understanding and illumination from data—is central to modern civilisation. It's ubiquitous, impacting all walks of life, from medicine, to finance, to public policy and government, even though one may have to look under the hood to see it. I might go so far as to say that none of the disciplines included in the Nobel awards would be possible in their modern form without statistics—perhaps with the exception of literature. So it was a gap that was crying out to be filled, and the Rousseeuw Prize does just that.

My role here is to describe the winning work in a high-level, informal and non-technical way, and introduce the prizewinners. I shall begin by looking at a couple of examples.

Motivating background examples

Your blood pressure fluctuates from day to day, over time of day, and even depending on whether you have been sitting or walking just before it was measured. It's affected by a multitude of random influences. So if I were to measure the blood pressure of everyone in this room, some of you would have a high value, perhaps even above the threshold which would prompt concern. But only for some of those would it be because you really had an underlying condition that might merit treatment, while for others it would be high simply because one of those other random influences had temporarily made it high.

In this context, a *false positive* or a *false discovery* is a test result which indicates something abnormal when really there is nothing abnormal.

If I rushed everyone who had a high blood pressure reading off to the hospital many of those would turn out to be perfectly normal. This would be bad news for all those who had been rushed off, not merely because of the time wasted but also because of the anxiety caused. Indeed, some medical screening programmes have been criticised for these very reasons. Being told you might have cancer—and then suffering intrusive investigations and perhaps even surgical operations—only to later discover that it was a false positive is clearly to be avoided.

So how can we reduce the number of such false positives?

One way would be to use a higher threshold which must be exceeded if we are to classify blood pressure as concerning. Indeed, by choosing a high enough blood pressure threshold I can make the number who have been unnecessarily rushed to the hospital as small as I like.

But there are a lot of people with normal blood pressure in this room. Even if I choose a threshold sufficiently high that any one person has a very small chance of being incorrectly flagged, with so many people the chance that I incorrectly flag one or more is large. To make my chance of incorrectly sending anyone to the hospital I need to set the threshold so high that most of those who do have hypertension will be missed. This rather defeats the object of the exercise. We seem to have something of an impasse.

It is at this point that today's laureates came galloping to the rescue. They developed a very clever novel strategy for tackling this problem, which I will describe in a moment. But first let me give my second example.

In image processing a pixel is one of the tiny dots that make up the picture. Look at an image or a computer screen in high magnification and you can see the dots, but from a distance they all merge together to give a continuous picture.

Medical scanning involves using X-rays or other methods to take images of slices through the body. Put all those slices together and you have a three-dimensional image of the inside of your body. So that three-dimensional image is made up of lots of tiny three-dimensional dots. These are called *voxels*. What we'd like to know is if any of those voxels, or regions of voxels, appear abnormal. Are they too bright? Again, we can test each of those voxels but random variation means we should expect that sometimes perfectly normal regions of the scan will show up brightly. And if we test lots of them we are pretty well guaranteed that some regions of the scans of perfectly healthy people will show up brightly just by chance. It's just like the blood pressure example.

A paper published in 2010, and which has now become a minor classic, illustrated the problem perfectly. The paper says:

Rousseeuw Prize presentation speech: continued from page 15

"One mature Atlantic Salmon [*a fish*]... participated in the fMRI study. The salmon measured approximately 18 inches long, weighed 3.8 lbs, and was not alive at the time of scanning [*the fish was dead*]... Image acquisition was completed on a 1.5-tesla GE Signa MR scanner. A quadrature birdcage head coil was used for RF transmission and reception...." and the paper goes on like that for several paragraphs giving details of the experimental setup, before continuing: "The task administered to the salmon involved completing an open-ended mentalizing task. The salmon was shown a series of photographs depicting human individuals in social situations .... The salmon was asked to determine which emotion the individual in the photo must have been experiencing."

Now at this point you are probably thinking to yourself that it's pretty clear what response the dead fish will give to being presented with the photographs. But here comes the crunch. The paper says: "Voxelwise statistics on the salmon data were calculated".

Now, you will remember from my description of what a voxel is that there will be a large number of them in any particular three-dimensional image. In the salmon's case there were 130,000.

This is like the blood pressure example, but instead of just 100 or so tests, there is a vast number of tests being conducted.

Carrying out separate tests on such a large number of voxels will almost certainly result in some showing apparent effects purely by chance, because of measurement error and so on. And that is indeed what the researchers found. They report, "Several active voxels were observed in a cluster located within the salmon's brain cavity..."

They went on to say, "Either we have stumbled onto a rather amazing discovery in terms of post-mortem ichthyological cognition [*they mean "dead fish thinking"*], or there is something a bit off with regard to our uncorrected statistical approach. Could we conclude from this data that the [*dead*] salmon is engaging in the perspective-taking task? Certainly not. By controlling for the cognitive ability of the subject we have thoroughly eliminated that possibility [*they mean, the fish was dead and so could not think*]. What we can conclude is that random noise ... may yield spurious results if multiple testing is not controlled for."

Of course, the aim of the authors of that paper was to drive home the consequences of failing to take account of the number of tests being conducted. They also included more appropriate analyses, including those based on the work of today's laureates.

I've given you two examples. A third occurs more generally in science. If scientists explore a great many different hypotheses, arranging so that each one has a chance of only 5% of being supported incorrectly, it means that the chance of accepting *at least one* incorrectly is very large. And, given enough such hypotheses, this could result in accepting a large number of hypotheses which are not true. It will mean that scientific claims are made which are later found to be false. This has become a real problem in some scientific disciplines, where it is known as the reproducibility crisis.

So, we have a problem.

The FDR method
Major breakthroughs in science often come from looking at things from a different angle, followed by a lot of hard work and a struggle for acceptance. I'll come to the hard work and struggle in a moment, but first let's look at the insight the laureates had that led to the work being presented today.

In my first example I looked at the chance of incorrectly flagging someone with normal blood pressure as hypertensive, and the opposite chance of incorrectly labelling someone with abnormal blood pressure as normal. That's all very well, but now put yourself in the physician's position. What you'd really like to know is, of all those that I send to the hospital, what proportion of them really have high blood pressure? If it turns out that only 1% of them really have high blood pressure, the hospital would ask me to stop wasting their time and resources, but if it turned out that 99% did then they'd be grateful.

Let me make this more general. Suppose, instead of people, I am testing many different drugs, or many different scientific hypotheses, or many different financial trading systems. The traditional perspective tells us what proportion of the ineffective drugs I claim are effective. The new perspective tells us, of those drugs I claim are effective, what proportion really are? That is often a much more relevant question. It's telling us how many of my claimed scientific discoveries are real. And its complement is telling us how many of my claimed discoveries are false—it's telling us the *false discovery proportion*.

But you may have spotted a difficulty here. We can't tell how many of the claimed discoveries are false because we don't actually know which are true and which are false. That's the whole point: it's what we are trying to find out. It means we can't actually calculate the false discovery proportion so we can't limit it.

In a seminal breakthrough paper published in 1995, Yoav Benjamini and Yosef Hochberg cracked the problem. Again, it's all about perspective and looking at problems in the right way. Instead of looking at the observed false discovery proportion, they looked at what you'd *expect* it to be, based on the available data. They called this the *false discovery rate*.

And using some clever mathematics, they showed that it *is* possible to control the value of this. That is, we can ensure that the false discovery rate is less than any value we want.

Struggle for acceptance

However, it has to be said that few people initially recognised the importance of the work, or how widespread its use would become. This is the struggle part.

It's traditional in science that papers are sent out to other experts in the field to be reviewed and commented upon. Is the data sound? Are the methods fully described? Do the conclusions follow? The paper will then probably be sent back for revision, often several times, with no guarantee of acceptance. Often journal editors decide that the submission does not quite match their aims for papers and it will be rejected. So one submits the paper to another journal. This is all standard procedure, but it means that the process of getting a paper published is slow and painstaking. Yoav Benjamini says of the 1995 paper, "Five years and three journals later the paper was accepted for publication." I imagine that the editors of those journals who rejected it felt a bit like all the publishers who rejected J.K. Rowling's first Harry Potter book.

Other papers on the false discovery rate concept suffered a similar protracted struggle before they were eventually published.

Now, the discipline of statistics is constantly advancing. New kinds of problems are arising, new types of data are being captured, new questions are being asked, and new methods must be developed to cope with these changes. The development of the Benjamini and Hochberg method illustrates this perfectly.

The method gradually gained traction, as researchers recognised that it often answered a more pertinent question than the traditional approaches. But it was the advent of new kinds of data which really gave it a boost, and catapulted the 1995 paper into being one of the most highly cited papers in statistics.

In particular, genetic data in the form of DNA microarrays arrived. This is characterised by thousands or tens of thousands of genes being tested simultaneously. A perfect illustration of the multiple testing challenges I outlined in my earlier examples. And this new kind of data required a solution which had already been developed in the 1995 paper.

But, of course, things don't stop there. The original paper assumed statistical independence of the multiple test statistics. That's not always a realistic assumption. Yoav Benjamini and Daniel Yekutieli went on to relax this constraint and, together with Ruth Heller have subsequently gone on to extend its application in various other directions.

The laureates

Daniel Yekutieli is an Associate Professor in the Department of Statistics and Operations Research at Tel Aviv University. He took a BSc in Mathematics from the Hebrew University of Jerusalem in 1992, a Master's in 1996, and a PhD in Applied Statistics in 2002, supervised by Yoav Benjamini. Between 1992 and 1997 he worked in the research department of the Israel Meteorological Service. It was Daniel's father, a physicist, who suggested he consider statistics as a career, which is why he moved to Tel Aviv University. While there he was encouraged by Yosef Hochberg and started working with Yoav Benjamini. Daniel says of Hochberg: "Yossi was a very generous and smart guy, he made me feel very welcome and even gave me consulting projects to do," and of Benjamini, "He seemed very kind, dependable and always open to new ideas [*all true!*] and I liked his outlook on statistics."

Ruth Heller is a Professor in the Department of Statistics and Operations Research at Tel Aviv University. She took a BSc in Mathematics from McGill University in 1996, where she received some very wise guidance from Professor David Wolfson, who told her that biostatistics is the most beautiful profession. Quite right, of course. Professor Heller then went on to take an MSc in biostatistics from the University of Washington in Seattle in 1998, and a PhD in statistics from Tel Aviv University in 2007, supervised by Yoav Benjamini. She has spent extended periods at the National Cancer Institute, the University of Pennsylvania, and Technion, the Israel Institute of Technology.

By this point you will have spotted the common factor throughout all of this work. **Yoav Benjamini** is the Nathan and Lily Silver Professor of Applied Statistics at Tel Aviv University. He studied Mathematics at the Hebrew University of Jerusalem, from which he graduated in 1973 and received his Master's in 1976. He then went to the United States to take a PhD at Princeton, graduating in 1981. He has spent time as Visiting Professor at various universities, including the University of California, Stanford University, and the Wharton School in Pennsylvania. He has received many awards for his work, including the 2012 Israel Prize, the Medallion Lecture of the IMS, and election to the Israeli Academy of Sciences and Humanities and the US National Academy of Sciences.

Those are today's three laureates, but I also want to mention one other person, whose name has cropped up repeatedly. This is **Yosef (or Yossi) Hochberg**. Regrettably, he passed away in 2013. Had he still been with us, he would certainly have been one of the laureates. His earlier work, such as his 1987 book *Multiple Comparison Procedures*, underpinned what I have been describing, and his continued work, through the seminal 1995 paper into the present century, led to significant development of the ideas.

The 1995 Benjamini and Hochberg paper is one of the most highly cited of all scientific papers. What that means is that a huge number of other researchers have used the method and developed it further. That 1995 paper was the start of a revolution, one which has benefited all of humanity in countless ways.

Read more about the Rousseeuw Prize at https://www.rousseeuwprize.org/

IMS MONOGRAPHS
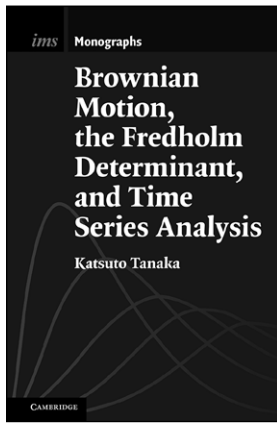
Brownian Motion, the Fredholm Determinant, and Time Series Analysis

Katsuto Tanaka, Professor Emeritus at Hitotsubashi University, Tokyo

Brownian motion is an important topic in various applied fields where the analysis of random events is necessary. Introducing Brownian motion from a statistical viewpoint, this detailed text examines the distribution of quadratic functionals of Brownian motion and demonstrates the utility of this approach for time series analysis. It also offers the first comprehensive guide on deriving the Fredholm determinant and the resolvent associated with such statistics.

Presuming only a familiarity with standard statistical theory and the basics of stochastic processes, this book brings together a set of important statistical tools in one accessible resource for researchers and graduate students. Readers also benefit from online appendices which provide probability density graphs and solutions to the chapter problems.

Katsuto Tanaka is Professor Emeritus at Hitotsubashi University, Tokyo. He is a recipient of the Tjalling C. Koopmans Econometric Theory Prize (1996), the Japan Statistical Society Prize (1998), and the Econometric Theory Award (1999). He previously authored *Time Series Analysis* (first edition 1996, second edition 2017), and six statistics and econometrics books in Japanese.

www.imstat.org/cup

Propose an IMS Monograph or Textbook volume

The Institute of Mathematical Statistics collaborates with Cambridge University Press (CUP) to publish two book series: the **IMS Monographs** and the **IMS Textbooks**. Books in the IMS series have the advantage that, in addition to being CUP books and receiving the full editorial, sales and marketing attention of a global non-profit publisher, they also carry the IMS imprimatur and receive focused promotion by the IMS to its members, journal subscribers, and conference attendees.

What kinds of books are appropriate for the CUP–IMS book series?

IMS Monographs advance knowledge in a manner that's complementary to the journals literature. These books:

- give an entry point to an emerging area of science; or
- consolidate a diffuse area of research, as a base and point of reference for further work; or
- allow an author to develop the outlook or philosophy that underlies an important body of work.

They are not encyclopedic or overly technical treatments and aim for concision.

IMS Textbooks are introductory accounts of topical areas suitable for advanced courses at Master's level, for doctoral students, and for individual study. Typically about 200 pages long, they have exercises and, where appropriate, accompanying computer code.

Both series publish across statistics, probability, and algorithms—the whole range of theory and applications—and also relevant areas of applied mathematics and computer science.

How are book proposals submitted?

A book proposal may be submitted to any member of the Editorial Board, joint for the two books series, or alternatively via Natalie Tomlinson of Cambridge University Press (natalie.tomlinson@cambridge.org), who is also happy to give advice. Editorial Board members are listed at https://imstat.org/journals-and-publications/ims-monographs/.

A proposal consists of a prospectus document and, ideally, draft or indicative material (such as sample chapters, or lecture notes, or perhaps a survey paper on the same subject as the book) that shows the style in which the book will be written.

For details of what is required in the prospectus, and what to expect from the proposal review process, please see the information at https://imstat.org/journals-and-publications/ims-monographs/propose-a-volume/

The Monographs and Textbooks that are currently available at https://www.cambridge.org/IMS (in publication order) are:

Bayesian Filtering and Smoothing, Simo Särkkä & Lennart Svensson, [2nd Edn.] 2023

The Conway–Maxwell–Poisson Distribution, Kimberly F. Sellers, 2023

Exponential Families in Theory and Practice, Bradley Efron, 2022

Principles of Statistical Analysis: Learning from Randomized Experiments, Ery Arias-Castro, 2022

Stable Lévy Processes via Lamperti-Type Representations, Andreas E. Kyprianou & Juan Carlos Pardo, 2022

Scheduling and Control of Queueing Networks, Weiss, Gideon, 2021

Computer Age Statistical Inference, Student Edition: Algorithms, Evidence, and Data Science, Bradley Efron & Trevor Hastie, 2021

Two-Dimensional Random Walk: From Path Counting to Random Interlacements, Serguei Popov, 2021

Statistical Modelling by Exponential Families, Rolf Sundberg, 2019

Applied Stochastic Differential Equations, Simo Särkkä & Arno Solin, 2019

Computational Bayesian Statistics: An Introduction, M. Antónia Amaral Turkman, Carlos Daniel Paulino & Peter Müller, 2019

Introduction to Malliavin Calculus, David Nualart & Eulalia Nualart, 2018

The Skew-Normal and Related Families, Adelchi Azzalini, 2018

Probability on Graphs: Random Processes on Graphs and Lattices, Geoffrey Grimmett, [2nd Edn.] 2018

Lectures on the Poisson Process, Günter Last & Mathew Penrose, 2017

Computer Age Statistical Inference: Algorithms, Evidence, and Data Science, Bradley Efron & Trevor Hastie, 2016

Nonparametric Inference on Manifolds: With Applications to Shape Spaces, Abhishek Bhattacharya & Rabi Bhattacharya, 2015

Core Statistics, Simon N. Wood, 2015

Noise Sensitivity of Boolean Functions and Percolation, Christophe Garban & Jeffrey E. Steif, 2015
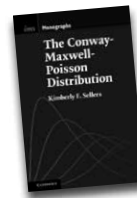
The Surprising Mathematics of Longest Increasing Subsequences, Dan Romik, 2015

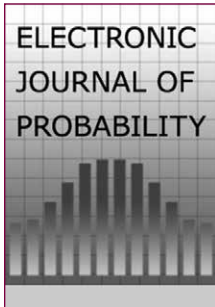*Case-Control Studies,* Ruth H. Keogh & D.R. Cox, 2014

Stochastic Networks, Frank Kelly & Elena Yudovina, 2014

Bayesian Filtering and Smoothing, Simo Särkkä, 2013

Large-Scale Inference: Empirical Bayes Methods for Estimation, Testing, and Prediction, Bradley Efron, 2012

# **Recent papers:** two open-access IMS/BS journals

Electronic Journal of Probability

The *Electronic Journal of Probability* (*EJP*) publishes full-length research articles in probability theory. Short papers should be submitted first to its sister journal, *Electronic Communications in Probability* (*ECP*); see below. *EJP* and *ECP* share the same editorial board, but with different Editors in Chief. The Editor of *EJP* is Cristina Toninelli. *EJP* and *ECP* are open access official journals of IMS and the Bernoulli Society. ***Donations to the IMS Open Access Fund help to keep the journal free:*** https://www.imstat.org/shop/donation/. You can read the 178 papers in Volume 29 (2024) at **https://projecteuclid.org/journals/electronic-journal-of-probability/current**

Electronic Communications in Probability

Electronic Communications in Probability (*ECP*) publishes short, peer-reviewed research articles in probability theory (typically shorter than 12 pages). *ECP* shares an editorial board with the *Electronic Journal of Probability*; the Editor of *ECP* is Patrícia Gonçalves. *EJP* and *ECP* are open-access official journals of IMS and the Bernoulli Society. ***Donations to the IMS Open Access Fund help to keep the journal free:*** https://www.imstat.org/shop/donation/. Read the 77 papers in Volume 29 (2024) at **https://projecteuclid.org/journals/electronic-communications-in-probability/current**
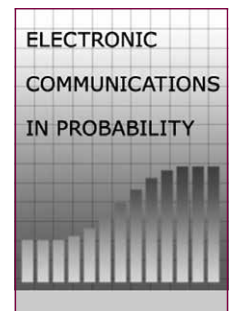
Call for papers: *Brazilian Journal of Probability and Statistics*

The *Brazilian Journal of Probability and Statistics* is an official publication of the Brazilian Statistical Association, ABE (http://www.redeabe.org.br/), and is supported by the Institute of Mathematical Statistics. The journal publishes four issues a year—in March, June, September, and December—in applied probability, applied statistics, computational statistics, mathematical statistics, probability theory, and stochastic processes. The Editor-in-Chief is Francisco José A. Cysneiros

Special issue celebrating 40 years of ABE – XXV SINAPE
Deadline for submissions: 30 May 2025. The *Brazilian Journal of Probability and Statistics* will publish a special issue in honor of the 40 years of ABE and the 25th SINAPE (National Symposium on

Probability and Statistics, which took place August 4–9, 2024, in Fortaleza, Brazil). The call seeks high-quality research papers in applied or theoretical probability and statistics, with **Marcos Prates** (UFMG) and **Juvêncio S. Nobre** (DEMA-UFC) as guest editors.

Papers should be submitted through the EJMS for review under the "special volume" flag. They should also fit the manuscript submission policy of the *Brazilian Journal of Probability and Statistics:* https://imstat.org/journals-and-publications/brazilian-journal-of-probability-and-statistics/brazilian-journal-of-probability-and-statistics-manuscript-submission/.

Submissions within the themes of the short courses, invited conferences, short talks, and poster sessions of XXV SINAPE
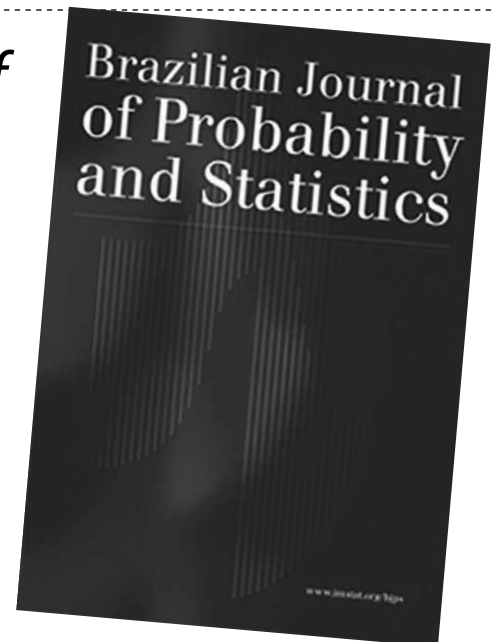
are particularly encouraged. Submitted articles will be peer-refereed.

The indication in EJMS of the special volume is needed to consider your paper for this specific issue. Please also inform the guest editors (marcossop@est.ufmg.br and juvencio@ufc.br) about your submission.

IMS meetings around the world
Joint Statistical Meetings

2025 Joint Statistical Meetings
August 2–7, 2025, Nashville, USA
w https://ww2.amstat.org/meetings/jsm/2025/
Including the 2025 IMS Annual Meeting.
The 2025 JSM will be held at the Music City Center, 201 Rep.
John Lewis Way South.
Contributed Abstract submission:
December 2, 2024 – February 3, 2025.
Presentations may be given on any topic of statistical interest; however, authors are encouraged to submit papers on the theme set by 2025 ASA President Ji-Hyun Lee, "Statistics, Data Science, and AI Enriching Society." Additionally, abstracts with a primary focus on statistical applications are encouraged.
Registration & Housing reservations open May 1, 2025.

JSM dates for 2026–2030

JSM 2026	IMS Annual Meeting @ JSM 2027	JSM 2028	IMS Annual Meeting @ JSM 2029	JSM 2030
August 1–6, 2026	**August 7–12, 2027**	**August 5–10, 2028**	**August 4–9, 2029**	**August 2028 [dates and location TBC]**
Boston, USA	**Chicago, USA**	**Philadelphia, USA**	**Seattle, USA**	

Frontiers in Statistical Machine Learning (FSML)
August 2, 2025
Nashville, USA
w https://fsmlims.wixsite.com/fsml25
This inaugural IMS co-sponsored workshop aims to ignite conversations and collaborations at the intersection of statistics and machine learning. Featuring peer-reviewed, open-call submissions for four-page extended abstracts, this event will showcase ideas in statistical machine learning that deserve broader attention within the statistical community.

The workshop will take place on August 2, 2025, at Vanderbilt University in Nashville, Tennessee, just ahead of the 2025 Joint Statistical Meetings (JSM).

There will be two main streams in the 2025 workshop: The Science of Deep Learning, and Statistical Learning from Heterogeneous Data Sources and Generalization. Stay tuned for our call for papers and join us in shaping the future of statistical machine learning!

Dates: paper submission deadline (strict) March 2, 2025. Notification of acceptance by May 2, 2025. Final paper submission by July 2, 2025.

The 10th Workshop on Biostatistics and Bioinformatics *NEW*
May 9–11, 2025, Atlanta, GA
w math.gsu.edu/yichuan/2025Workshop/
Biostatistics and Bioinformatics have been playing very important roles in scientific research fields in recent years. The goal of this tenth workshop is to stimulate research and to foster the interaction of researchers in the research areas.

The keynote speaker is Dr. Heping Zhang, the Susan Dwight Bliss Professor of Biostatistics, Professor in the Child Study Center and Professor of Statistics and Data Science at Yale University.

A short course, "Tutorial on Deep Learning and Generative AI," taught by Dr. Haoda Fu, will be offered as a part of the workshop program on the afternoon of Friday, May 9, 2025.

See the website for the call for papers on *Topics in Big Data Analysis, Biostatistics and Bioinformatics.*

At a glance:
forthcoming IMS Annual Meeting and JSM dates

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

2026
IMS Annual Meeting: Salzburg, Austria, **July 6–9**

JSM: Boston, MA, **August 1–6, 2026**

2027
IMS Annual Meeting @ JSM: Chicago, USA **August 7–12, 2027**

2028
IMS Annual Meeting/ 12th World Congress: Singapore, **July 24–28, 2028**

JSM: Philadelphia, USA, **August 5–10, 2028**

More IMS meetings

BNP 14: The 14th International Conference on Bayesian Nonparametrics
June 23–27, 2025, Los Angeles, USA
w https://bnp14.org/

The 14th International Conference on Bayesian Nonparametrics will be hosted by the Department of Biostatistics and the Department of Statistics & Data Science at UCLA in Los Angeles, United States, on June 23–27, 2025. A workshop on Predictive Inference is currently planned for the afternoon of June 22nd, 2025.

We invite the **submission of contributed talks**. The deadline for submission is December 15, 2024. Contributed talks will be around 20 minutes long. The one-presentation-per-speaker policy is in effect: each meeting participant shall give at most one presentation (oral or poster). We encourage potential participants to submit their proposals, as there will be many opportunities for contributed speakers.

The BNP conference is a bi-annual international meeting bringing together leading experts and talented young researchers working on applications and theory of nonparametric Bayesian statistics. It is an official section meeting of the Bayesian nonparametrics section of the International Society for Bayesian Analysis (ISBA). Attendees are expected to share our commitment to safeISBA, and to adhere to the ISBA code of conduct.

The BNP 14 meeting is co-sponsored by ISBA and IMS, and it is endorsed by the ASA's Section of Bayesian Statistical Sciences.

The first-ever **BioPharm Section Meeting** will follow the BNP 14 conference in the afternoon of June 27th; details forthcoming at https://isba-biostatspharma.github.io/

SSP2025: Seminar on Stochastic Processes
March 19–22, 2025
Indiana University, Bloomington, USA.
w TBC

The 2025 SSP will be March 20–22, 2025, with tutorial lectures on March 19, 2025. It will be hosted by Indiana University, Bloomington, USA. The local organizers are Wai-Tong (Louis) Fan, Nathan Glatt-Holtz, Elizabeth Housworth, Russell Lyons, and Jing Wang. The invited speakers are Adrián González-Casanova, Mariana Olvera-Cravioto, Jinyoung Park, Simon Tavaré, and Maria Eulália Vares (SSP Founders Lecture). More information to follow.

ENAR 2025 Spring Meeting
March 23-26, 2025
New Orleans, LA, USA
w https://www.enar.org/meetings/spring2025/

The ENAR 2025 Spring Meeting will be held March 23-26, 2025 at the Sheraton New Orleans Hotel in New Orleans, Louisiana. The 2025 meeting theme is "ENAR is Interdisciplinary."

ICMS25: the 4th International Conference on Mathematics and Statistics
February 20–22, 2025
Sharjah, United Arab Emirates
w https://www.aus.edu/conferences/the-fourth-international-conference-on-mathematics-and-statistics

The deadline for abstract submission has been extended to December 17, 2024.
The registration deadline has been extended to December 27, 2024.

The fourth International Conference on Mathematics and Statistics (ICMS25) at American University of Sharjah aims to provide a platform for those engaged in the realm of pure and applied mathematics, mathematical education and statistics. This conference serves as a venue for the exchange of the latest research insights and for networking among scholars and practitioners.

ICMS25 will feature keynote addresses from Dr. Martin Bohner, Missouri University of Science and Technology, USA (*Generalized Periodicity*); Dr. Kathryn Hess, Polytechnic Lausanne, Switzerland (*Topological Insights in Neuroscience*); and Dr. Edriss Titi, University of Cambridge, UK, and Texas A&M University, USA (*Rigorous Analysis and Numerical Implementation of Nudging Data Assimilation Algorithms*). ICMS25 will also include specialized sessions and contributions of papers, with selected publications in internationally refereed journals.

The technical program will feature three keynote lectures delivered by esteemed scholars and special sessions focusing on areas such as algebra, coding theory, data mining, machine learning, differential equations, mathematical biology and topology. Additionally, there will be contributed paper sessions with oral and poster presentations.

For more information about visas, and about hotel accommodation in Sharjah, please contact AUS-ITL World Tourism & Travel LLC at traveldesk.aus@itltravel.com.

More IMS meetings

2026 IMS Asia Pacific Rim Meeting (IMS–APRM)
June 13–16, 2026
Hong Kong, ROC
w TBC

The IMS Asia Pacific Rim (IMS-APRM) conferences provide an excellent forum for scientific communications and collaborations for researchers in Asia and the Pacific Rim, and promote communications and collaborations between researchers in this area and those from other parts of the world.

The 2026 Local Organizers are Xinyuan Song and Junhui Wang.

More details coming; please mark your calendars.

44th Conference on Stochastic Processes and their Applications 2025
July 14–18, 2025, Wrocław, Poland
w https://spa.pwr.edu.pl/

SPA Conferences, organised by the Bernoulli Society and co-sponsored by IMS, are the most important series of international meetings on the theory and applications of stochastic processes.

Invited speakers: Benoit Collins (Kyoto University); Giuseppe Cannizzaro (University of Warwick), **Doeblin Lecture**; Alessandra Faggionato (La Sapienza), **Doob Lecture**; Thomas Hutchcroft (California Institute of Technology); Tomasz Komorowski (Polish Academy of Sciences and UMCS); Florence Merlevède (University of Paris-Est Marne-la-Vallée), **Lévy Lecture**; Roberto Imbuzeiro Oliveira (IMPA); Ron Peled (Tel Aviv University); Sunder Sethuraman (University of Arizona), **Schramm Lecture**; Justin Salez (Paris Dauphine University); Cristina Toninelli (Paris Dauphine University and CNRS); Itô Lecturer TBD.

Organizing committee members are Krzysztof Bogdan and Krzysztof Dębicki.

You can pre-register at https://spa.pwr.edu.pl/preregistration.

Convention Bureau, Wrocław

2026 IMS Annual Meeting
July 6–9, 2026
Salzburg, Austria

More details TBD. The Local Chair is Arne Bathke.

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.

Bernoulli–IMS 12th World Congress in Probability & Statistics
July 24–28, 2028. Singapore
w TBC

The Institute of Mathematical Statistics annual meeting will be held at the 12th Bernoulli–IMS World Congress in Probability and Statistics, in Singapore. Details to follow.

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

Foresight Practitioner Conference 2025 NEW
March 3–4, 2025
University of North Carolina at Charlotte

w https://forecasters.org/events/foresight-practitioner-conference/

The *Foresight* Practitioner Conference (FPC) brings together preeminent forecasting practitioners and business leaders to network, learn, and explore emerging and cutting-edge aspects of forecasting. The conference focuses on collaborating and improving forecast practice by showcasing businesses, subject matter experts, and organizations that significantly impact value. The conference is hosted by the International Institute of Forecasters (IIF) and includes an IIF Award for the Impact of Forecasting in Practice.

(*Foresight* is the International Journal of Applied Forecasting, published by the International Institute of Forecasters, a nonprofit organization singularly focused on furthering knowledge in forecasting.)

The speakers are Lauren Davis, North Carolina A&T State University (Using forecasting for equitable, efficient, and effective food distribution policies at food banks); Skander Hannachi, Technical Solutions Manager, Google Cloud's Applied AI Engineering (7 lessons learned from 7 years of AI based demand forecasting); Stephan Kolassa, SAP Switzerland AG (Accuracy is (not) all you need); Nikos Kourentzes, University of Skövde, Sweden (Forecasting as a Core Strategic Competence); Ruby Kuklov, AstraZeneca (Forecasting Biotech Pipelines, Delivering for Patients, and Safeguarding Returns); and Simon Spavound, Drexel University (Business strategies for successfully deploying forecasting models for clients).

Registration is open ($995 before January 15, $1095 after): https://forecasters.org/foresight-practitioner-conference-registration/

2025 ASA Biopharmaceutical Section NEW
Regulatory-Industry Statistics Workshop (RISW)
September 24–26, 2025
Rockville, MD, USA

w https://ww2.amstat.org/meetings/risw/2025/

Planning is underway for the 2025 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop (RISW). The workshop is sponsored by the ASA Biopharmaceutical Section in cooperation with the US Food and Drug Administration Statistical Association. Each year, the conference lasts three days, with invited sessions co-chaired by statisticians from industry, academia, and the FDA. Short courses on related topics take place on the first day of the workshop.

The organizers are accepting the first round of proposal submissions. This is your chance to share your expertise alongside leading professionals from industry, academia, and regulatory agencies. Submit a proposal to present a parallel session or short course. As you prepare your submission, be sure to align with the 2025 theme: *"Future in Statistics: Collaboration and Innovation in the AI/ML Era."*

The RISW has funding for **student travel grants**. Up to $500 per student, by reimbursement, is available to support students' participation in the 2025 workshop. Please see https://ww2.amstat.org/meetings/risw/2025/studenttravelgrant.cfm.

The COPSS–NISS Leadership Webinar Series

The online series features conversations with leaders throughout the discipline, including leaders from major academic and government institutions, and companies. Invited speakers share their leadership stories and answer questions about their experiences. Each webinar is moderated by a member of the COPSS Emerging Leaders in Statistics program.

Leadership in Communication of Statistics: February 6, 2025, 12:00pm ET

https://www.niss.org/events/copss-niss-leadership-webinar-leadership-communication-statistics

Speakers: Francesca Dominici (Harvard University) and David Spiegelhalter (Emeritus, University of Cambridge), with moderator Daniele Durante (Bocconi University)

Making an Impact on Public Health Through Statistical Leadership: February 25, 2025, 12:00pm ET

https://www.niss.org/events/copss-niss-leadership-webinar-making-impact-public-health-through-statistical-leadership

Speakers: Bhramar Mukherjee (Yale School of Public Health), Thomas Fleming (Washington), with moderator Jennifer Bobb (Washington)

The most recent webinars are: **Leadership at the Intersection of Statistics and Psychometrics** (recorded November 26, 2024), with Steven Culpepper and Sandip Sinharay; and **Leadership in Linking Statistical Theory and Scientific Inquiry** (recorded October 29, 2024), with Michael Kosorok and Daniela Witten. See https://www.youtube.com/@NISSCommunications/playlists

School on Stochastic interacting particle systems and random matrices
June 16–20, 2025, Budapest, Hungary
NEW

w https://erdoscenter.renyi.hu/events/school-stochastic-interacting-particle-systems-and-random-matrices

The School on stochastic interacting particle systems and random matrices will be held between 16–20 June 2025 in the main lecture hall of the Rényi Institute, Budapest, as part of the thematic semester on Probability and Statistical Physics (January–June 2025) hosted by the Erdős Center. Graduate students (MSc and PhD), postdocs, and early career researchers are encouraged to apply.

Six mini-courses are delivered by distinguished researchers of the field consisting of three lectures and one tutorial session of 50 minutes each and a limited number of participants can give a short presentation. The event is followed by the Workshop on stochastic interacting particle systems and random matrices. [*See separate announcement, right.*]

Mini-courses by **Charles Bordenave** (Title TBC); **Ivan Corwin** (The scaling limit of colored ASEP); **László Erdős** (Title TBC); **Nina Gantert** (Exclusion processes: classical results and new questions); **Alice Guionnet** (CLT and loop equations for Beta-ensembles); and **Bálint Virág** (Title TBC).

Application is open, with a deadline of March 15, 2025. Applicants are asked to email their application to probstatphys25@renyi.hu with subject "School on IPS and RMT application". The application e-mail should contain the full name, affiliation, and CV (including a list of publications). Early applications have a higher chance of being accepted.

For more information on possible travel support, lodgings and giving a short talk, please visit the website.

3rd World Conference on Data Science & Statistics
June 16–18, 2025
Amsterdam, Netherlands
NEW

w https://datascience.thepeopleevents.com/

The World Conference on Data Science & Statistics (Data Science Week 2025) is an international educational conference for Data Scientists, Analytics, Visualizers, data experts and Python professionals hosted by The People Events. The theme is "Shaping Tomorrow: The Impact of AI and ML in Data Science."

Workshop on Stochastic interacting particle systems and random matrices
June 23–27, 2025
Budapest, Hungary
NEW

w https://erdoscenter.renyi.hu/events/workshop-stochastic-interacting-particle-systems-and-random-matrices

The Workshop on stochastic interacting particle systems and random matrices will be held between 23–27 June 2025 at the main lecture hall of the Rényi Institute (Budapest) as part of the thematic semester Probability and Statistical Physics (January–June 2025) hosted by the Erdős Center.

The aim of the workshop is to bring together members of these two communities. We provide opportunities for both early-career and more established colleagues to showcase their research, while also allowing time for discussions during the meeting. For this reason, all talks at the meeting will be 30 minutes long (with an extra five minutes for questions).

The event is preceded by the School on stochastic interacting particle systems and random matrices. [*See separate announcement, left.*]

Registration is now open. The registration deadline is May 15, 2025. Participants are asked to send their registration to the e-mail address probstatphys25@renyi.hu with the subject "Workshop on IPS and RMT registration". The application e-mail should contain the full name and affiliation.

11th International Conference on Lévy Processes 2025
July 28–August 1, 2025
Sofia, Bulgaria
NEW

w https://sites.google.com/view/levyconference2025/home

The 11th International Conference on Lévy Processes will be held in Sofia, Bulgaria between July 28 and August 1, 2025. It continues the long tradition of Lévy conferences, which were previously held in Mannheim (2022), Samos (2019), Angers (2016), Wroclaw (2013), Dresden (2010), Copenhagen (2007), Manchester (2005), Paris (2003) and Aarhus (2002, 1999). The aim of the conference is to bring together a wide range of researchers and graduate students working on topics related to Lévy processes and their applications.

Topics will include: Applications to Biology, Finance and Insurance; Fluctuation theory; Infinite divisibility; Lévy trees; Numerical methods; Potential theory; Queues; Stable and self-decomposable processes; Stochastic analysis; Stochastic partial differential equations.

The conference will follow on from a satellite **Summer School (July 25–27, 2025)** at the same venue. The summer school lecturers are: **Bastien Mallein** (Université Toulouse III Paul Sabatier, France), **Jason Schweinsberg** (University of California, San Diego, USA), and **Pierre Patie** (Cornell University, USA).

Registration for the 11th International Conference on Lévy Processes is open. Please visit https://sites.google.com/view/levyconference2025/registration

Employment Opportunities

United States: Champaign, IL

Department of Statistics, University of Illinois Urbana-Champaign

Teaching/Clinical Assistant Professors, Lecturers & Instructors

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Rice University

Assistant or Associate Professor

https://jobs.imstat.org/job//75916750

United States: Madison, WI

Department of Statistics

Associate Professor/Professor of Statistics

https://jobs.imstat.org/job//75641070

United States: Madison, WI

University of Wisconsin - Madison

Assistant Professor of Statistics

https://jobs.imstat.org/job//75640935

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 series

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

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

January 2025

January 17–18: Gainesville, USA. *Winter Workshop:* **Computational Methods in Bayesian Statistics** w https://stat.ufl.edu/winter-workshop/2025-computational-methods-in-bayesian-statistics/

January 20–22: Soesterberg, The Netherlands. **22nd Winter School on Mathematical Finance** w https://staff.fnwi.uva.nl/a.khedher/winterschool/winterschool.html

February 2025

NEW February 6: online. *COPSS–NISS Leadership Webinar:* **Leadership in Communication of Statistics** w https://www.niss.org/events/copss-niss-leadership-webinar-leadership-communication-statistics

ims February 20–22: Sharjah, United Arab Emirates. **ICMS25: the 4th International Conference on Mathematics and Statistics** w https://www.aus.edu/conferences/the-fourth-international-conference-on-mathematics-and-statistics

NEW February 25: online. *COPSS–NISS Leadership Webinar:* **Making an Impact on Public Health Through Statistical Leadership** w https://www.niss.org/events/copss-niss-leadership-webinar-making-impact-public-health-through-statistical-leadership

March 2025

NEW March 3–4: UNC at Charlotte. *Foresight* **Practitioner Conference 2025** w https://forecasters.org/events/foresight-practitioner-conference/

March 3–May 23: Chicago, USA. *IMSI Long Program:* **Uncertainty Quantification & AI for Complex Systems** w www.imsi.institute/activities/uncertainty-quantification-and-ai-for-complex-systems/

March 11–14: Dresden, Germany. **17th German Probability and Statistics Days (GPSD)** w https://www.gpsd-2025.de/

ims March 19–22: Bloomington, USA. **SSP2025: Seminar on Stochastic Processes** w TBC

March 23–26: New Orleans, USA. **ENAR 2025 Spring Meeting** w https://www.enar.org/meetings/spring2025/

March 24–28: Berlin, Germany. **DAGStat Conference 2025** w https://dagstat2025.de/#home

May 2025

NEW ims May 9–11: Atlanta, USA. **10th Workshop on Biostatistics and Bioinformatics** w https://math.gsu.edu/yichuan/2025Workshop/

June 2025

June 2–27: Vancouver, Canada. **2025 PIMS–CRM Summer School in Probability** w https://secure.math.ubc.ca/Links/ssprob25/

NEW June 16–18: Amsterdam, Netherlands. **World Conference on Data Science & Statistics** w datascience.thepeopleevents.com/

NEW June 16–20: Budapest, Hungary. **School on Stochastic interacting particle systems and random matrices** w https://erdoscenter.renyi.hu/events/school-stochastic-interacting-particle-systems-and-random-matrices

June 16–20: Singapore. **Bayes Comp 2025** w bayescomp2025.sg

ims June 23–27: Los Angeles, USA. **BNP14: 14th International Conference on Bayesian Nonparametrics** w https://bnp14.org/

International Calendar *continued*

June 2025 continued

NEW June 23–27: Budapest, Hungary. **Workshop on Stochastic interacting particle systems and random matrices w** https://erdoscenter.renyi.hu/events/workshop-stochastic-interacting-particle-systems-and-random-matrices

June 23–27: Verona, Italy. **12th General AMaMeF conference w** https://sites.google.com/view/amamef2025/

June 29–July 2: Beijing, China. **45th International Symposium on Forecasting w** https://isf.forecasters.org/

June 30–July 3: Atlanta, Georgia, USA. **INFORMS Applied Probability Society Conference w** https://informs-aps.isye.gatech.edu/

July 2025

ims July 14–18: Wrocław, Poland. **Stochastic Processes and their Applications 2025 w** https://spa.pwr.edu.pl/

July 21–25: Turin, Italy. **24th European Young Statisticians Meeting w** https://sites.google.com/view/eysmtorino2025/home

NEW July 28–August 1: Sofia, Bulgaria. **11th International Conference on Lévy Processes 2025 w** https://sites.google.com/view/levyconference2025/home

August 2025

ims August 2: Nashville, USA. **Frontiers in Statistical Machine Learning (FSML) w** https://fsmlims.wixsite.com/fsml25

ims August 2–7: Nashville, TN, USA. **IMS Annual Meeting at JSM 2025 w** ww2.amstat.org/meetings/jsm/2025/

September 2025

NEW September 24–26: Rockville, MD, USA. **2025 ASA Regulatory-Industry Statistics Workshop w** https://ww2.amstat.org/meetings/risw/2025/

October 2025

October 5–9: The Hague, The Netherlands. **65th ISI World Statistics Congress w** https://www.isi-next.org/conferences/isi-wsc2025/ [*note new URL*]

June 2026

June 1–4: Washington DC, USA. **9th International Workshop in Sequential Methodologies w** www.american.edu/cas/iwsm2026/

ims June 13–16: Hong Kong, ROC. **IMS–APRM2026: IMS Asia Pacific Rim Meeting w** TBC

June 15–19: Chicago, USA. **Stochastic Networks Conference w** www.chicagobooth.edu/events/stochastic-networks-conference

July 2026

ims July 6–9: Salzburg, Austria. **IMS Annual Meeting. w** TBC

July 23–30: Philadelphia, USA. **International Congress of Mathematicians 2026 w** https://www.icm2026.org/

August 2026

ims August 1–6: Boston, MA, USA. **JSM 2026 w** www.amstat.org/meetings/joint-statistical-meetings

August 2027

ims August 7–12: Chicago, USA. **IMS Annual Meeting at JSM 2027 w** www.amstat.org/meetings/joint-statistical-meetings

July 2028

ims July 24–28: Singapore. **Bernoulli–IMS 12th World Congress in Probability and Statistics** (incl. IMS Annual Meeting). **w** TBC

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/

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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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