IMS Bulletin

ims

January/February 2019

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National Academy of Medicine

IMS Fellow Xihong Lin was among those elected as members of the National Academy of Medicine (NAM), one of the three United States Academies, along with Science

and Engineering. Election to the Academy is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service.

Xihong Lin is the Henry Pickering Walcott Professor of Biostatistics, professor of statistics, and coordinating director of the Program in Quantitative Genomics at Harvard T.H. Chan School of Public Health. She was elected for her "contributions to statistics, genetics, epidemiology, and environmental health through influential and ingenious research in statistical methods



Xihong Lin

and applications in whole-genome sequencing association studies, gene-environment, integrative analysis, and complex observational studies."

"This distinguished and diverse class of new members is a truly remarkable set of scholars and leaders whose impressive work has advanced science, improved health, and made the world a better place for everyone," said NAM President Victor J. Dzau. "Their expertise in science, medicine, health, and policy in the U.S. and around the globe will help our organization address today's most pressing health challenges and inform the future of health and health care. It is my privilege to welcome these esteemed individuals to the National Academy of Medicine."

New members are elected by current members through a process that recognizes individuals who have made major contributions to the advancement of the medical sciences, health care, and public health.

Also elected to NAM from the statistics community were the following people: Francesca Dominici, Clarence James Gamble Professor of Biostatistics, Population, and Data Science at Harvard T.H. Chan School of Public Health, and co-director of the Harvard Data Science Initiative, for *"developing and applying innovative statistical methods to understanding and reducing the impact of air pollution on population health."*

John P.A. Ioannidis, C.F. Rehnborg Professor in Disease Prevention, professor of medicine, health research and policy, biomedical data science, and statistics, and co-director of Meta-Research Innovation Center at Stanford University, for "his dedication to rigorous, reproducible, and transparent health science, for his seminal work on meta-research, for his calls for quality in evidence, and for the positive impact it has had on the reliability and utility of scientific information throughout the sciences."

Bradley A. Malin, professor and vice chair, biomedical informatics, and professor of biostatistics and computer science, Vanderbilt University, for *"contributions in natural language de-identification, guiding both national and international policies around research protection and enabling broad sharing and reuse of health and social data at an unprecedented scale."*

IMS Bulletin

Volume 48 • Issue 1 January/February 2019 ISSN 1544-1881

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IMS Members' News

2018 Mortimer Spiegelman Award

The Applied Public Health Statistics section of the American Public Health Association has named Raphael Gottardo, a computational biologist at Fred Hutchinson Cancer Research Center, the winner of its 2018 Mortimer Spiegelman Award. The Spiegelman Award honors statisticians under the age of 40 who have made outstanding contributions to health

statistics, especially public health statistics.

"It is a privilege to be recognized by my peers and win such a well-respected award," Gottardo said. "Researching ways to harness the immune system to prevent infections and cure cancer is a massive undertaking that involves analyzing and integrating a large amount of data, and I'm proud that my work is helping other scientists turn that trove of information into actionable insights."



Gottardo's work focuses on developing methods and tools to analyze large immunological data sets generated by novel assay technologies and helping scientists understand the results of their experiments.

"Dr. Gottardo has an outstanding ability to apply an integrated, reproducible and open approach to his research," said Fred Hutch colleague and biostatistician Peter Gilbert. "I've had the pleasure of collaborating with Raphael on many HIV vaccine projects over the years and his fusion of computational immunology, computer science and statistical research is second to none."

The Mortimer Spiegelman Award is named for demographer, actuary and biostatistician Mortimer Spiegelman and has been presented annually since 1970. See https://www.apha. org/apha-communities/member-sections/applied-public-health-statistics/who-we-are/ awards

Nominate for 2019 COPSS Awards

Each year, the statistical profession recognizes outstanding members at the Joint Statistical Meetings in an awards ceremony organized by the Committee of Presidents of Statistical Societies (COPSS). Anyone can nominate-from the newest to most senior members of our societies. It is important to single out those who have made exceptional contributions to the profession. Please review the COPSS Awards for 2019, and see if you can identify worthy individuals.

Four COPSS awards will be presented at the 2019 JSM in Denver, Colorado, which will take place July 27-August 1, 2019. The deadlines for the Fisher Award and Lectureship and the Florence N. David Award and Lectureship have passed, but there is still time to nominate for the Presidents' Award and the George W. Snedecor Award. Nominations for these awards should be submitted by January 15, 2019, to the relevant committee chair or to the COPSS Secretary.

For more information and contact details, please visit http://copss.org.

IMS Journals: new editors

Some of the IMS journals have new editors. Starting January 1, 2019, the *Annals of Applied Probability* will now have two Co-editors (like the *Annals of Statistics* has had). Therefore, Editor Bálint Tóth is handing over to Francois Delarue and Peter Friz. Francois is Professor in the mathematics department at the Université Nice–Sophia Antipolis in France; his website is at https://math.unice.fr/~delarue/. Peter Friz is Einstein Professor in Mathematics at TU-Berlin, and affiliated to the Weierstrass Institute for Applied Analysis and Stochastics, in Germany; his webpage is at http://page.math.tu-berlin.de/~friz/

At the *Annals of Applied Statistics*, Tilmann Gneiting hands over to Karen Kafadar as the Editor-in-Chief. Karen is Commonwealth Professor and Chair of the statistics department at the University of Virginia: http://statistics.as.virginia.edu/faculty-staff/profile/kk3ab

The *Annals of Statistics* Co-editors Ed George and Tailen Hsing are also ending their term. The new Co-Editors are Ming Yuan and Richard Samworth. Ming, who is also currently serving IMS as Program Secretary, is Professor of Statistics at Columbia University in New York: http://www.columbia.edu/~my2550/. Richard holds the Professorship of Statistical Science, and is Director of the Statistical Laboratory, at the University of Cambridge: http://www.statslab.cam.ac.uk/~rjs57/

As well as these new editors, Domenico Marinucci has agreed to serve for a second term as Editor of the *Electronic Journal of Statistics*, as recommended by the joint IMS/Bernoulli Society Committee to Select Editors. His term will be until the end of 2021. Domenico's web page is http://www.mat.uniroma2.it/~marinucc/

Thank you to everyone who serves our community in this way!

American Association for the Advancement of Science selects new Fellows

The American Association for the Advancement of Science has bestowed upon 416 of its members the lifetime honor of being an elected Fellow in recognition of their extraordinary achievements in advancing science. Among those elected to the Section on Statistics are three IMS members: Song Xi Chen, Peking University, China; Edward L. Ionides, University of Michigan; and Sharon-Lise Normand, Harvard Medical School. The new AAAS Fellows will be recognized at the 2019 AAAS Annual Meeting in Washington DC. During a Fellows Forum on February 16, they will be presented with an official certificate and the AAAS Fellows' gold and blue rosette pin, the colors of which represent the fields of science and engineering respectively.

CHILDCARE GRANTS

Are you bringing a child to the next IMS Annual Meeting (i.e. JSM in Denver, July 27 – August 1, 2019)? Apply to the IMS Child Care Initiative, and the IMS will reimburse 80% of the costs of privately arranged child care (for a dependent under 13), up to a maximum of US\$250 per family. Priority will be given to those presenting papers or posters at the meeting.

https://www.imstat.org/meetings/ims-child-care-initiative/

access published papers online

IMS Journals and Publications

Annals of Statistics: Ming Yuan, Richard Samworth 🐠	DATED
http://imstat.org/aos	
Mhttp://projecteuclid.org/aos	

UPDATED

- Annals of Applied Statistics: Karen Kafadar http://imstat.org/aoas @http://projecteuclid.org/aoas
- Annals of Probability: Amir Dembo http://imstat.org/aop
- Mhttp://projecteuclid.org/aop Annals of Applied Probability: Francois Delarue, Peter Friz
- http://imstat.org/aap Dhttp://projecteuclid.org/aoap

Statistical Science: Cun-Hui Zhang http://imstat.org/sts @http://projecteuclid.org/ss

IMS Collections

A http://projecteuclid.org/imsc

IMS Monographs and IMS Textbooks: Nancy Reid https://www.imstat.org/journals-andpublications/ims-monographs/

MS Co-sponsored Journals and Publications

- Electronic Journal of Statistics: Domenico Marinucci http://imstat.org/ejs @http://projecteuclid.org/ejs
- Electronic Journal of Probability: Andreas Kyprianou @http://ejp.ejpecp.org
- Electronic Communications in Probability: Giambattista Giacomin Mhttp://ecp.ejpecp.org

Journal of Computational and Graphical Statistics: Diane Cook

http://www.amstat.org/publications/jcgs © log into members' area at imstat.org

Statistics Surveys: David Banks http://imstat.org/ss @http://projecteuclid.org/ssu

Probability Surveys: Ben Hambly http://imstat.org/ps @http://www.i-journals.org/ps/

IMS-Supported Journals

ALEA: Latin American Journal of Probability and Statistics: Victor Perez Abreu Mhttp://alea.impa.br/english

Annales de l'Institut Henri Poincaré (B): Gregory Miermont, Christophe Sabot http://imstat.org/aihp @http://projecteuclid.org/aihp

Bayesian Analysis: Bruno Sansó ¤https://projecteuclid.org/euclid.ba

Bernoulli: Holger Dette http://www.bernoulli-society.org/ @http://projecteuclid.org/bj

Brazilian Journal of Probability and Statistics: Francisco Louzada Neto http://imstat.org/bjps @http://projecteuclid.org/bjps

IMS-Affiliated Journal

Observational Studies: Dylan Small Mhttps://obsstudies.org/

- Probability and Mathematical Statistics: K. Bogdan, M. Musiela, J. Rosiński, W. Szczotka, & W.A. Woyczyński © http://www.math.uni.wroc.pl/~pms
- Stochastic Systems: Shane Henderson Mhttp://www.i-journals.org/ssy/

Anirban's Angle: US Elections, 2016, 2018, 2020



Anirban DasGupta writes: I thought it would be revealing and entertaining to look at the recently concluded US midterm election results and make some conclusions. Who is voting Republican? What is, really, the Republican base? And what about the Democrats? Are the bases entirely disjoint?

Is the base more scattered for one of the parties compared to the other? Are the midterm voters of each party essentially the same as the voters who voted for them in the 2016 Presidential election? Or, are the two parties growing and capturing new voters? We will see...

We will also give a probability based on a stated model that the sitting US President would be reelected if elections are held now. First, the actual 2018 midterm data, which is presented in table 1 (right).

In view of these demographic voting percentages, by an elementary application of Bayes' theorem, we can identify subgroups of the US population that can be called the **bases** of the two political parties. White men form 35% of the total population, but form 48% of the Republican vote. Evangelical Christians form 26% of the total population, and yet form 44% of the Republican vote. Gun owners also form 44% of the Republican vote, and about 20% of the Republican vote are rural voters.

In contrast, women form 52% of the total population, but form 61% of the Democratic vote. White women with a college degree and blacks each form 20% of the Democratic vote, millennials form 17%, Latinos 15%, black women alone 11%, LGBT voters 10%, and urban and suburban voters form a whopping 86% of the Democratic vote. The Democratic base seems to consist of a larger number of smaller subgroups than two or three large dominating groups. The Democratic base is more uniform. It is useful to present the bases in a tabular form (see table 2 below, and table 3 on the next page).

Table 2: Republican base, data for 2018 US midterm elections

Republican Base	% of population	% of Rep. vote
White men	35%	48%
White men no college	20%	30%
Evangelicals	26%	44%
Gun owners	46%	44%
Rural voters	17%	20%

Table 1: voting data for 2018	8 US midter	m elections	
Group	Group size	Republican %	Democrat %
All voters		44%	50.5%
All males	48%	51%	47%
All females	52%	40%	59%
White men	35%	60%	39%
White women	37%	49%	49%
White men no college	20%	66%	32%
White men college	15%	51%	47%
White women no college	21%	56%	42%
White women college	16%	39%	60%
Nonwhites no college	18%	22%	76%
Nonwhites college	10%	22%	77%
All 18-29 age	13%	32%	67%
All 45-64	39%	50%	49%
All whites	72%	54%	44%
Blacks	11%	9%	90%
Latinos	11%	29%	69%
Asians	3%	23%	77%
Black men	5%	12%	88%
Black women	6%	7%	92%
Gun owners	46%	61%	36%
Non gun owners	53%	26%	72 %
Protestants	25%	61%	38%
Catholics	26%	49%	50%
White evangelicals	26%	75%	22%
Jewish	2%	17%	79%
Married	59%	47%	51%
Unmarried	41%	37%	61%
Independents	30%	42 %	54%
Trump strongly like	31%	94%	5%
Trump like some	14%	74%	24%
Trump dislike some	8%	34%	63%
Trump strongly dislike	46%	4%	95%
Health care main issue	41%	23%	75%
Immigration main	23%	75%	23%
Economy main	22%	63%	34%
LGBT	6%	17%	82%
Urban	32%	32%	65%
Suburban	51%	49%	49%
Rural	17%	57%	42%

Democratic Base	% of population	% of Dem. vote
Women	52%	61%
Women with college degree	16%	20%
Blacks	11%	20%
Millennials	7%	17%
Latinos	11%	15%
Black women	6%	11%
LGBT voters	6%	10%

Table 3: Democrat base, data for 2018 US midterm elections

We can also deduce from the midterm results and Bayes' theorem that 83% of the Republican voters in the midterm are those that voted for the Republican nominee in the 2016 Presidential election; and 80% of the Democratic voters in the midterm are those that voted for the Democratic nominee in the 2016 Presidential election. Both parties have attracted some new voters. Political activity in the coming months will no doubt see the two parties protect and defend interests of their respective bases.

It is always a seductive idea to try to predict the future, especially for a loaded question such as, "Will the sitting US President be re-elected?" We give some sort of a probability for it based on a set of assumptions, which are that:

- (a) The probability is for re-election if elections are held now.
- (b) It is assumed that whether or not the sitting President wins the electoral college votes in a given state is determined by his approval rating in that state.
- (c) If the approval rating is 50% or more, it is assumed that he is guaranteed to win that state, and if the approval rating is 45%

or less, it is assumed that he will lose that state. If the approval rating, say α , is between 0.45 and 0.5, we model the probability that he will win that state as $20 \times (\alpha - 0.45)$.

- (d) Based on the approval ratings in each state at the 2018 midterm elections, there are then only four states that are in play: Arizona, Nevada, North Carolina, and Wisconsin. The sitting Presidents' winning probability in these states are respectively 0.75, 0.5, 0.75, 0.5, using the formula in (c). These states carry 11, 6, 15, 10 electoral college votes, respectively. So, plainly, the probability of carrying all four states is at most 0.5
- (e) If we let μ denote the expected number of electoral colleges the sitting President will win from these four states, then, by using the obvious indicator variables, $\mu = 27.5$.
- (f) Of the 306 electoral colleges that the sitting President won in the 2016 election, he is assured to win in 228 at this point of time, and he is assured to lose in 42 of them (PA approval 45, MI approval 44, IA approval 43). Thus, to still win an electoral college majority of at least 270 electoral colleges, he must carry all four states in play listed above.

Therefore, the probability that the sitting President will win re-election if elections are held now is approximately 14%, under the model stated in (a)–(c), and mutual independence of voters in these four states. We can give a conservative bound without assuming this mutual independence, for, by Markov's inequality, the probability that the sitting President will win all four of the above states is at most $2.5 \div 4 = 0.625$. If we average the 14% number and the 62.5% number, we get 38.5%, and it is humorous to notice that this is alluringly close to the betting market probability (according to PredictIt) as I write this...

New History of Statistics group

Michael P. Cohen, American Institutes for Research, is a founding member of a new group, and he would like you to join him: The American Statistical Association (ASA) has a brand new History of Statistics Interest Group (HoSIG). Membership in ASA is not required to join. Anyone interested in the history of statistics is welcome and encouraged to become a member.

The objectives of HoSIG are to:

- 1. Bring together individuals and groups who have an active interest in the history of statistics.
- 2. Promote and support research into the history of statistics at all levels.
- 3. Further the use of the history of statistics in education.
- 4. Encourage the historical perspective among statisticians and related professionals.
- Contribute to the program of the annual Joint Statistical Meetings and selected meetings of the ASA and other professional organizations.

Please let me know if you have any questions: email mpcohen@juno.com. You will find instructions about how to join at this link: http://community.amstat.org/historyofstats/aboutus/join

OBITUARY: Frank Hampel

FRANK RUDOLF HAMPEL, professor emeritus at ETH Zurich, passed away in Thalwil near Zurich, Switzerland, on October 2, at the age of 77.

Frank Hampel was well known for his fundamental contributions to robust statistics, in particular for the introduction of the basic concepts of influence function and breakdown point. The influence function-"perhaps the most useful heuristic tool of robust statistics," according to Peter Huber (Robust Statistics, Wiley 1981, pp.13–14)—describes the approximate effect on an estimate when inserting, deleting or modifying a single observation. Moreover, the asymptotic variance of an estimator is given by the expected value of the squared influence function. This connection allowed Frank to formulate and solve a central optimality problem in robust statistics, namely to minimize the asymptotic variance under a bound on the influence of a single observation ("Lemma 5" in his thesis). In contrast to the infinitesimal description provided by the influence function, the breakdown point is a global measure that gives the largest percentage of arbitrary bad observations an estimator can tolerate without diverging. His book Robust statistics: The approach based on the influence function, written together with Elvezio Ronchetti, Peter Rousseeuw and Werner Stahel (Wiley, 1986), contains a systematic exposition of the area. It served as a key reference for more than two decades and was highly influential.

In addition to deviations from an assumed marginal distribution, Frank also considered deviations from independence, advocating the use of long-range dependence models as the most relevant type of unsuspected dependence. Another important contribution by Frank is what he called "small sample asymptotics", a variant of saddle-point approximations for the distribution of estimators, based on a different derivation. They provide an excellent agreement with the exact distribution even for very small samples.

In his later years, Frank focused on the philosophical foundations of statistics. He argued for describing epistemic uncertainty by upper and lower probabilities, corresponding to one-sided bets. In his approach, total ignorance about an event means that one refuses to bet on either the event or its complement. It remains to be seen if these ideas will be recognized in the future as a fundamental new approach.

Frank grew up in Germany during World War II; his father died when he was one year old. His mother then moved to the house of his grandfather in Upper Silesia. Because this region became Polish at the end of the war, the family was forced to leave and ended up near Göttingen. After high school, Frank studied physics, mathematics and philosophy in Munich and Göttingen. His professor in Göttingen, Konrad Jacobs, who worked in ergodic theory, showed him the seminal 1964 Annals of Mathematical Statistics paper by Peter Huber, and encouraged him to go to Berkeley with a one-year exchange scholarship. He decided to stay there and completed his PhD in 1968. Officially, Erich Lehmann was his advisor, but Erich wrote in Reminiscences of a Statistician (Springer, 2008, p.158) that "...in fact I had essentially no input. My 'contribution' consisted of my immediate realization of the importance and maturity of this work ... and my task was to encourage, smooth the process and otherwise stay out of the way." After his PhD, Frank accepted an offer by Volker Strassen (famous for proving



Frank Hampel

an invariance principle for the law of the iterated logarithm) to move with him from Berkeley to the University of Zurich and to take a position as "Oberassistent", being in charge of the statistical consulting service. In 1970–71, Frank was invited together with Peter Bickel and Peter Huber to join John Tukey during the "Princeton robustness year", which had a big impact on the further development of robust statistics. In 1974, he was elected as associate professor at ETH Zurich, thus becoming a colleague of Peter Huber. He was soon promoted to full professor and stayed at ETH until his retirement in 2006. In 2007 he received an honorary doctorate from the University of Dortmund for his "scientific achievements in the area of modern statistics and data analysis."

Besides statistics, Frank had a keen interest in, and profound knowledge of, nature, in particular astronomy, birds, orchids and dragonflies. No road was too far and no search too laborious if he could find and observe a species he had never seen before. He was very happy and patient to share his knowledge and enthusiasm with others. Frank was an independent thinker who had a great influence on many statisticians with his original ideas, and at the same time was a very kind person. He is survived by his wife, Verena.

Hans R. Künsch, ETH Zurich

Recent papers: 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)*. *EJP* and *ECP* share the same editorial board, but with different Editors in Chief. *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 it at https://projecteuclid.org/euclid.ejp

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Hand writing: Right, legitimate and proper? The new world of data ethics

Contributing Editor David J. Hand (Imperial College London) has been thinking about the ethical, social and policy challenges associated with the rise and rise of "big data":

Data ethics seem to be the flavour of the month. In the UK alone, the establishment of the National Statistician's Data Ethics Advisory Committee has been quickly followed by the Government Department of Digital, Culture, Media and Sport launching its Data Ethics and Innovation Centre, and the Nuffield Foundation launching its Ada Lovelace Centre, aimed at taking "a lead on the interaction between data, ethics, and artificial intelligence in the UK". And there's nothing unique about the UK in this—a quick Google search shows a proliferation of such bodies with, for example, the Council for Big Data, Ethics, and Society being established in the US in 2014, aimed at providing "critical social and cultural perspectives on big data initiatives". Indeed, it is not even limited to governments: corporations and other bodies are also concerned

that their use of data, which is often central to their business model, should be ethically sound, not least to avoid the risk of public backlash and possibly highly restrictive legislation

Of course, statisticians have long been aware of the ethical dimensions of their work, though usually these were manifest through particular application domains, such as a requirement to include statisticians on medical ethics committees, or the requirement to be able to explain an adverse decision in the context of consumer loans. Professional bodies of statisticians, such as the ASA and RSS, have long had systems of ethical guidelines, as have other organisations for which data are central (e.g. the ACM).

But more recently, recognition of the need for such ethical oversight has grown, mainly because of raised awareness of the potential and pervasiveness of big data, data science, and artificial intelligence. Attention has shifted, from rather specialised concerns for informed consent in clinical trials, the preservation of anonymity in survey work,

Further reading

- European Data Protection Supervisor (2015) *Towards a New Digital Ethics: Data, Dignity, and Technology*, https://edps. europa.eu/sites/edp/files/ publication/15-09-11_data_ethics_ en.pdf
- Philosophical Transactions of the Royal Society, Volume 374, Issue 2083, theme issue on *The Ethical Impact* of Data Science.
- Hand D.J. (2018) Aspects of data ethics in a changing world: where are we now? *Big Data*, **6**, 176–190.
- Metcalf J., Keller E.F., and Boyd D. (2016) *Perspectives on Big Data, Ethics, and Society.* The Council for Big Data, Ethics, and Society.
- Zwitter A.Z. (2014) Big data ethics. *Big Data and Society*, July-December, 1–6.

avoiding prohibited variables in insurance decisions, and so on, to much more "in-your-face" issues. These are matters such as selection bias leading to racist decisions, chatbots being gratuitously offensive, and questions of who is responsible when a driverless car crashes or a data theft leads to fraud.

Incidents like these occur for a variety of reasons. Automatic data collection leads to massive data sets accumulating without human oversight. Adaptive and self-learning algorithms go their own way (that's the whole point, really). And the line between research and practice is becoming blurred in many contexts. Moreover, there is increasing tension between the data minimisation principle (that only sufficient data should be collected to answer the specific question) and the promise of data mining (that large data sets contain nuggets of great potential interest and value).

Resolutions of such tensions are not easy to arrive at, and solutions are complicated by the nature of public opinion—which is

> both heterogeneous and volatile. Different sections of the public, having had different experiences and been exposed to different circumstances, will have different views on what is right, legitimate, and proper. Worse still, those views will fluctuate with time—perhaps especially in response to events such as media reports of data losses or thefts, or fraud associated with advanced use of data.

> Although sometimes described as *the new oil*, because of the way data, and data science, are revolutionising society just as fossil fuels did earlier, data have unique properties, leading to correspondingly unique ethical challenges. These properties will be very familiar to statisticians: data can be copied (as many times as you like), data can be sold or given away and yet simultaneously retained, data can be used multiple times for many different purposes, data can be of insufficient quality for some uses and yet perfectly adequate for other uses, and so on.

> Such diverse applications and properties of data are compounded when data sets

are linked, perhaps in unforeseen and indeed unforeseeable ways. A data set might even be linked to new data which did not exist at the time the first data set was collected. There are already plenty of examples where privacy has been breached through sophisticated linking exercises.

Ethical considerations cover the concept of personal data (this lies at the core of the EU's General Data Protection Regulation), data ownership (is this a meaningful concept? Some regard data they have collected, possibly at great expense, as theirs, while others regard such data as belong to the person they describe), consent and purpose, privacy and confidentiality, the right to be forgotten, the right to access data, an awareness of new developments in data science technology, the views of the public, and trustworthiness

Such considerations do not permit simple formulaic answers, since these must be context-dependent and dynamic. Instead, solutions must be principles-based, with higher-level considerations guiding decisions in any particular context. These principles include that the data and their analysis should **serve the public good**, should be **transparent**, must be **non-discriminatory**, should be **trustworthy and honest**, should **protect individual identities**, and should **adhere to legal requirements**. Moreover, the world of data and data science is changing rapidly, as large data sets continue to accumulate, as new analytic tools continue to be developed, and as real-time and online processing becomes increasingly prevalent (for example, with the advent of the Internet of Things). This means that the principles must be regularly reviewed to see that they remain adequate.

In seeking to apply ethical principles, a delicate balance must be often be struck. Constraints on data science must not be so great that they stifle innovation and social progress, preventing statistics and data science from benefiting humanity. That would be just as unethical.

IMS awards: nominate now

There is still time to nominate your outstanding colleagues and collaborators IMS Fellowship or for the Carver medal.

A candidate for the **IMS Fellowship** shall have demonstrated distinction in research in statistics or probability, by publication of independent work of merit. This qualification may be partly or wholly waived in the case of either a candidate of well-established leadership whose contributions to the field of statistics or probability other than original research shall be judged of equal value; or a candidate of well-established leadership in the application of statistics or probability, whose work has contributed greatly to the utility of and the appreciation of these areas. Candidates for fellowship should be members of IMS when nominated (you can email Elyse Gustafson erg@imstat.org to check this before you start). The nomination deadline is January 31, 2019. For nomination requirements, see https://www.imstat.org/honored-ims-fellows/ nominations-for-ims-fellow/.

Nominations are invited for the **Carver Medal**, created by the IMS in honor of Harry C. Carver, for exceptional service specifically to the IMS. All nominations must be received by February 1, 2019. Please visit https://www.imstat.org/ims-awards/harry-c-carver-medal/.

... or apply for a Travel Award

Applications are open for two types of travel awards. The **IMS Hannan Graduate Student Travel Award** funds travel and registration to attend (and possibly present a paper/poster at) an IMS sponsored or co-sponsored meeting. This travel award is available to *IMS members who are graduate students (seeking a Masters or PhD degree) studying some area of statistical science or probability.*

If you are a New Researcher (awarded your PhD in 2013–18) looking for travel funds, you should apply for the **IMS New Researcher Travel Award** to fund travel, and possibly other expenses, to present a paper or a poster at an IMS sponsored or co-sponsored meeting (apart from the IMS New Researcher's Conference, which is funded separately).

Applicants for both these travel awards must be members of IMS, though joining at the time of application is allowed (student membership is free, and new graduate membership discounted!). The application deadline for both is February 1, 2019.

See https://www.imstat.org/ims-awards/ims-hannan-graduatestudent-travel-award/ and https://www.imstat.org/ims-awards/ ims-new-researcher-travel-award/ for details.

Student Puzzle Corner 23

Here's Anirban DasGupta's latest puzzle:

The previous problem on inference based on the distribution of a nonsufficient statistic required the use of both Markov Chain theory and statistical inference [see solution below]. It was a problem on probability and statistics simultaneously. This month we pose a rather simple problem which should be fun to think about, and has many possible answers! So, hopefully, many of you will think of one of the correct answers.

Let $C(\mu, 1)$ denote the Cauchy distribution on the real line with location parameter μ and scale parameter equal to one. Suppose μ belongs to \mathcal{R} (the parameter space) and that we wish to estimate it under squared error loss function. Let X_1, X_2, \cdots be an iid $C(\mu, 1)$ sequence. Assume Deadline: January 25, 2019 that n > 7. Give, with proof, a sequence of estimators $T_n(X_1, X_2, \dots, X_n)$ of μ , such that:

(a) For every n, T_n is inadmissible;

(b) For no n, T_n is minimax;

(c) For every n, T_n is unbiased;

(d) The sequence of estimators $\{T_n\}$ is asymptotically efficient.

(e) Compute the numerical value of the estimator you have proposed for the following data values:

0.1, 2.9, -0.6, 3.1, 3.6, -6.5, 0.2, 1.0, 2.4, -15.9.

Solution to puzzle 22

Contributing Editor Anirban DasGupta writes:

Embed the longest run problem into a stationary Markov chain with the following transition matrix. Denote the observed longest head run in *n* tosses of a *p*-coin by L_n and suppose we wish to find $P(L_n \ge m)$, m a general non-negative integer. You go to state zero from state *i* with probability 1-p and go to state *i*+1 from state *i* with probability *p*, with state *m* as an absorbing state.

Denote this $(m+1) \times (m+1)$ matrix by P_m and let Q[n,m] denote its *n*th power. Then $P(L_n \ge m)$ is the last element in the zero-th row of Q[n,m].

By evaluating $P(L_n \ge 1) - P(L_n \ge 2)$ with n = 10, one gets

 $P(L_{u} = 1) = 10p - 54p^{2} + 128p^{3} - 189p^{4} + 216p^{5} - 205p^{6} + 144p^{7} - 63p^{8} + 14p^{9} - p^{10}.$

It is uniquely maximized at $p \approx .1616$, which is the value of the MLE of p based on L_p alone. A moment estimate is easily found by inverting the expectation formula

$$E(L_n) \approx \frac{\log n}{\log \frac{1}{p}} - \frac{\log(1-p)}{\log p}.$$

An approximate solution is

$$\hat{p} = n^{-1/2}$$

This estimate will have a fairly serious bias problem. However, with work, we can derive a (high order) asymptotic expansion for the bias of \hat{p} . Hence, we can correct \hat{p} for its bias, at least to the first order. These are very classic ideas in large sample theory of inference.

The Student Puzzle Corner contains problems in statistics or probability. Solving them may require a literature search. Student IMS members are invited to submit solutions (to bulletin@ imstat.org with subject "Student Puzzle Corner"). The deadline is January 25, 2019.

The names of student members who submit correct solutions, and the answer, will be published in the following issue. The Puzzle Editor's decision is final.

Student member? Apply for IMS Hannan Travel award

If you are a graduate student, studying some area of statistical science or probability, who has not yet received a PhD degree, you could apply for an IMS Hannan Travel Award. The award funds travel to an IMS sponsored or co-sponsored meeting. You are encouraged to present a paper or poster at the meeting, but this is not required. You need to be a student member of IMS, which is free, and you can join at the time of applying for the award.

The deadline for applications is February 1, 2019.

See https://www.imstat.org/ ims-awards/ims-hannan-graduatestudent-travel-award/

IMS meetings around the world

Joint Statistical Meetings: 2019–2023

IMS sponsored meeting

IMS Annual Meeting @ JSM 2019 July 27–August 1, 2019. Denver, CO, USA.

w http://ww2.amstat.org/meetings/jsm/2019/

We hope you'll join us in Denver for the 2019 IMS Annual Meeting, in conjunction with JSM. With more than 6,500 attendees (including over 1,000 students) from 52 countries, and over 600 sessions, it's a busy few days! The theme this year is *"Statistics: Making an Impact."*

Anyone can propose a Topic-Contributed Session for JSM 2019!

Topic-contributed sessions are a great way to bring speakers together to present about a shared topic, so if you have a great idea for a JSM session, check out http://ww2.amstat.org/meetings/jsm/2019/topiccontributed.cfm Topic-contributed session proposals are due December 12

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IMS sponsored meetings: JSM dates for 2020-2024

JSM 2020	IMS Annual Meeting	2022 Joint Statistical
August 1–6, 2020	@ JSM 2021	Meetings
Philadelphia, PA	August 7–12, 2021,	August 6–11, 2022
	Seattle, WA	Washington DC

IMS co-sponsored meeting

The Tenth International Conference on Matrix-Analytic Methods in Stochastic Models

February 13–15, 2019

The University of Tasmania, Hobart, Australia

w http://www.maths.utas.edu.au/People/oreilly/mam/mam10.html IMS Representative on Program Committees: Mark Squillante Matrix-Analytic Methods in Stochastic Models (MAM) conferences aim to bring together researchers working on the theoretical, algorithmic and methodological aspects of matrix-analytic methods in stochastic models and the applications of such mathematical research across a broad spectrum of fields, which includes computer science and engineering, telephony and communication networks, electrical and industrial engineering, operations research, management science, financial and risk analysis, bio-statistics, and evolution.

Keynote speakers: Søren Asmussen, Jevgenijs Ivanovs, Giang Nguyen, Zbigniew Palmowski and Phil Pollett.

IMS Sponsored meeting

Bernoulli/IMS 10th World Congress in Probability and Statistics August 17–21, 2020. Seoul, South Korea w TBC

Program chair is Siva Athreya and the Local chair is Hee-Seok Oh.

IMS Annual Meeting
@ JSM 2023
August 5–10, 2023
Toronto, ON, Canada

JSM 2024 August 3–8, 2024 Portland, Oregon

IMS co-sponsored meeting

20th INFORMS Applied Probability Society Conference

July 3–5, 2019. Brisbane, Australia

w http://informs-aps.smp.uq.edu.au/ The plenary speakers for the conference are: Charles Bordenave, Université de Toulouse, France (IMS Medallion Lecturer); Ton Dieker, Columbia University; Nelly Litvak, University of Twente and Eindhoven University of Technology, Netherlands; and Sidney Resnick, Cornell University (Marcel Neuts Lecturer).

A number of related events are being held before and after this conference: *Queues, Modelling, and Markov Chains: A Workshop Honouring Prof. Peter Taylor,* June 28–30 at Mount Tamborine, Queensland. *Applied*² *Probability,* July 2 at The University of Queensland, Brisbane 12th International Conference on Monte Carlo Methods and Applications (MCM2019), July 8–13 in Sydney, Australia.

At a glance:

forthcoming IMS Annual Meeting and JSM dates

2019

IMS Annual Meeting @ JSM: Denver, July 27–August 1, 2019

2020

JSM: Philadelphia, August 1–6, 2020

IMS Annual Meeting/ 10th World Congress:

Seoul, South Korea, August 17–21, 2020

2021

IMS Annual Meeting @ JSM: Seattle, August 7–12, 2021

2022

IMS Annual Meeting: TBC

JSM: Washington, August 6–11, 2022

2023

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



More IMS meetings around the world

IMS co-sponsored meeting

Computer Age Statistics in the Era of Big and High-Dimensional Data January 3–5, 2019. Pune, India

w https://www.iccas19pune.org/

The aim of the conference is to be a rendezvous for computer age statisticians, to explore their remarkable contributions and journey through new vistas of twenty-first century Statistics. The interactions during this meeting are expected to spark the creativity of the delegates and spur them to contribute remarkable and productive research outputs. Topics include but are not limited to: computer age statistics, big and high-dimensional data, statistical learning and data mining, biostatistics/bioinformatics, Bayesian inference, industrial statistics, spatial statistics and applications, financial statistics, astrostatistics. Pre-conference workshops on January 2, 2019.

IMS co-sponsored meeting

Workshop: Emerging Data Science Methods for Complex Biomedical and Cyber Data March 29–30, 2019 Augusta, GA, USA

w https://www.augusta.edu/mcg/dphs/workshop

The Division of Biostatistics and Data Science in the Department of Population Health Sciences in the Medical College of Georgia (MCG) at Augusta University (AU) is organizing this workshop focusing on elucidating emerging data science methods for modeling complex biomedical and cyber data. The goal of the proposed two-day workshop is to educate and empower graduate students, postdoctoral fellows, and early career researchers and faculty members with emerging statistical methods to address the complex data arising from various fields, in particular, from biosciences and cyber science.

IMS co-sponsored meeting

The 7th Workshop on Biostatistics and Bioinformatics May 10–12, 2019 Atlanta, GA, USA

w https://math.gsu.edu/yichuan/2019Workshop/

The keynote speaker is Dr. Samuel Kou, Professor of both Statistics and Biostatistics, the chair of Statistics Department at Harvard, and the recipient of the COPSS President's Award in 2012. There will be invited talks by distinguished researchers, and a poster session by young researchers and graduate students.

In order to encourage graduate students and young researchers to conduct a cutting-edge research, we will organize a poster session. The workshop will be providing **partial travel awards** to selected conference participants. Priority will be given to senior graduate students, post-graduate, recent PhD's, junior faculty, and under-represented groups. Check the website for application details of travel awards for young and minority researchers.

IMS co-sponsored meeting

12th International Conference on Bayesian Nonparametrics (BNP12) June 24–28, 2019. Oxford, UK

w http://www.stats.ox.ac.uk/bnp12/

The Bayesian nonparametrics (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. Keynote speakers are Tamara Broderick (MIT), Long Nguyen (Michigan) and Aad van der Vaart (Leiden). Applications for travel support: **deadline December 15**.

Note that O'Bayes 2019 follows this meeting in Warwick, 70 miles away [see the announcement below]

IMS co-sponsored meeting

O'Bayes 2019: Objective Bayes Methodology Conference June 29–July 2, 2019 University of Warwick, UK

w https://warwick.ac.uk/fac/sci/statistics/staff/academic-research/ robert/0bayesconference/

O'Bayes 2019 is dedicated to facilitate the exchange of recent research developments in objective Bayes theory, methodology and applications, and related topics, to provide opportunities for new researchers, and to establish new collaborations and partnerships. The meeting is the biennial meeting of the Objective Bayes section of the International Society for Bayesian Analysis (ISBA).

Note that O'Bayes 2019 is immediately after the BNP 2019 conference in Oxford [see announcement above], which takes place 24–28 June 2019, close enough in both travel time (45 minutes by direct train) and distance (70 miles) to benefit members of both the Objective Bayes and Bayesian non-parametric communities, who should consider joint attendance.

Registration is open now.

Co-sponsored VEW IMS-China 2019 July 6–10, 2019. Dalian, China wims-china.org

2019 IMS-China international conference on statistics and probability: details to follow.



ENAR dates, 2019–2020

March 24–27, 2019: in Philadelphia, PA March 22–25, 2020: in Nashville, TN

w http://www.enar.org/meetings/future.cfm The 2019 ENAR/IMS meeting will be in Philadelphia (and the following year in Nashville.) Featuring a *Fostering Diversity in Biostatistics* workshop on March 24, on career and training opportunities within biostatistics, connecting underrepresented minority students interested in biostatistics with professional biostatisticians in academia, government and industry. The 2019 ENAR Spring Meeting, with IMS and sections of ASA, will be held in Philadelphia, USA, during March 24–27, 2019. The four-day meeting will host students, researchers, and practitioners from all over the biostatistics profession, from academia to industry and government, from places large and small, brought together to share ideas, learn and connect over a joint interest in biometry.

Scientific Program: The diverse and exciting invited program sessions cover a wide range of topics, including statistical advances for microbiome data, electronic health records data, wearable/mobile technology, self-reported outcomes, non-ignorable missing data, data integration, causal inference, survival outcomes, spatial modeling, precision medicine, and clinical trials. The IMS Program Chair Vladimir Minin (University of California, Irvine) has put together complementary sessions on classification, variable selection, causal inference, statistical modeling in cell biology, microbiome data, surveillance data and mediation analysis for high-dimensional data.

Preliminary Program now online: https://www.enar.org/meetings/spring2019/program/ Preliminary_Program.pdf. Registration is open now (early bird deadline is February 1). See https://www.enar.org/meetings/spring2019/

IMS co-sponsored meeting 2019 WNAR/IMS meeting June 23–26, 2019 Portland, Oregon, USA

w http://www.wnar.org/event-3013994

The 2019 WNAR/IMS meeting will be in Portland, Oregon from June 23-26 hosted by Oregon Health & Science University (OHSU). Portland, Oregon's largest city, is known for eco-friendliness with high walkability, parks, bridges and bicycle paths. The scientific program features short courses, invited and contributed oral sessions, and student paper sessions. The local organizer is Byung Park (parkb@ohsu.edu), and the program chair is Meike Niederhausen (niederha@ohsu.edu).

IMS co-sponsored meeting

2019 Seminar on Stochastic Processes March 13–16, 2019. University of Utah, Salt Lake City, USA

w http://www.math.utah.edu/SSP-2019/

The Seminar on Stochastic Processes 2019 (SSP2019) will feature the Kai-Lai Chung lecture from Jean Bertoin (Universität Zürich), and invited speakers: Dan Crisan (Imperial College London); Kay Kirkpatrick (University of Illinois at Urbana-Champaign); Sunder Sethuraman (University of Arizona); and Amandine Véber (École Polytechnique).

On March 13th, there will be two 90-minute tutorials by Marek Biskup (University of California, Los Angeles). More information on the content of the tutorials will be posted in early 2019.

There are no registration fees, but all participants, including invited speakers, are asked to register (the registration form is on the meeting website now).

IMS co-sponsored meeting

41st Conference on Stochastic Processes and their Applications (SPA) July 8–12, 2019. Evanston, IL, USA

w http://sites.math.northwestern.edu/SPA2019/

The 41st Stochastic Processes and their Applications conference will take place July 8–12, 2019, in Evanston, USA. It will feature the following invited lectures. **Plenary Speakers:** Cécile Ané, Béatrice de Tilière, James R. Lee, Dmitry Panchenko, Yanxia Ren, Allan Sly, Caroline Uhler. **IMS Medallion Lectures:** Krzysztof Burdzy and Etienne Pardoux. **Lévy Lecture:** Massimilliano Gubinelli. **Doob Lecture:** Jeremy Quastel. **Schramm Lecture:** Stanislav Smirnov.

IMS co-sponsored meeting

ICIAM 2019: the 9th International Congress on Industrial and Applied Mathematics

July 15–19, 2019. Valencia, Spain

w https://iciam2019.org/index.php

The 9th International Congress on Industrial and Applied Mathematics (ICIAM 2019) will be held in Valencia, Spain, from July 15–19, 2019. IMS is a member of ICIAM

Call for minisymposia: **deadline extended to December 10**. See https://www.iciam2019.com/index.php/scientific-program/ minisymposia

IMS co-sponsored meeting

The 7th International Workshop in Sequential Methodologies June 18–21, 2019. Binghamton, USA

w https://sites.google.com/view/iwsm2019

Hosted by Department of Mathematical Sciences at Binghamton University, State University of New York (SUNY), USA.

Other meetings and events around the world

NEW

NEW

Statistics & Data Science: *Beyond big, corrupted or missing data*

La Jolla, CA

w http://hdsi.ucsd.edu

This two-day Symposium is organized in collaboration with the new Halicioğlu Data Science Institute (hdsi.ucsd.edu) of the University of California, San Diego. The program will include plenary talks, invited talks, and a poster session, bringing together senior and junior people pushing the frontier of current research. People interested in participating may contact Jelena Bradic, jbradic@ucsd.edu

ASA Biopharmaceutical Section: Regulatory-Industry Statistics Workshop September 23–25, 2019 Washington DC

w https://ww2.amstat.org/meetings/biop/2019/

Proposals for parallel sessions, short courses, and town halls are being accepted now. Save the date and submit your session proposal for the 2019 workshop: submission deadline: December 14

The workshop has sold out two years in a row, so as attendees can attest, it is a valuable opportunity to share or showcase your ideas with the best in the field, including statistical practitioners in the biopharmaceutical arena from industry, academia, and the FDA. Poster and roundtable proposal submission open January 22.

SYSORM 2019 June 4–7, 2019 El Escorial, Spain

w https://eventos.ucm.es/go/sysorm19

The 2nd Spanish Young Statisticians and Operational Researchers Meeting (SYSORM) will be held on 4–7 June 2019 in El Escorial (Spain), under the auspices of the Spanish Society of Statistics and Operations Research (SEIO). The aim of the meeting, organized for and by young researchers, is to represent and provide visibility to the newer generations of talented researchers in Statistics and Operations Research in Spain and neighboring countries. The meeting will have four plenary speakers and a mix of invited and contributed talks to be presented in a single continuous session. Details of the conference, including submission deadlines, can be found at the website above.

Workshop on Theory and Applications of Stochastic Partial Differential Equations June 10–14, 2019

The Fields Institute, Toronto, Canada

w http://www.fields.utoronto.ca/activities/18-19/SPDEs Organizers: Raluca Balan, Lluis Quer-Sardanypons and Jian Song The area of SPDEs has been growing steadily in the past 30 years, providing new techniques for analyzing complex systems whose behaviour is subject to random perturbations. SPDEs can be used for modelling a wide range of physical phenomena, encountered in statistical mechanics, mathematical physics, theoretical neuroscience, fluid dynamics and mathematical finance.

In addition to talks given by world-experts in this area, the workshop will contain 4 expository lectures (of 90 minutes each) given by internationally renowned researchers **Robert Dalang** (École Polytechnique Fédérale de Lausanne) and **David Nualart** (University of Kansas), intended for graduate students and researchers who are not experts in the field.

The workshop will also contain a poster session. Participants who are interested in presenting a poster are advised to contact the organizers before June 1, 2019.

The registration fee of C\$185 includes coffee breaks and lunch, which will be served on site. Optional excursion to Niagara Falls.

29th European Safety and Reliability Conference (ESREL 2019) September 22–26, 2019. Hannover, Germany

w https://esrel2019.org/

The objective of ESREL 2019 is to provide an all-round inspiring environment and a multi-disciplinary forum for the exchange of knowledge and expertise on theories and methods in the field of risk, safety and reliability, and on their application to a wide range of industrial, civil and social sectors and problem areas. Research and applications in the connection between probability theory and statistics with engineering is of particular interest. This range is structured into 19 methodological topics and 23 application areas and sectors. Papers presented at ESREL 2019 will be published in open access conference proceedings by Research Publishing Services, Singapore, and be indexed. Post-conference special issues in indexed journals will be prepared based on extended versions of papers selected from the conference. We would be very pleased to receive your valuable contribution and to welcome you at ESREL 2019!



Perspectives on high-dimensional data analysis (HDDA-IX) June 24–27, 2019

Uppsala, Sweden

w https://indico.uu.se/event/526/overview

The 9th International Workshop 'Perspectives on High-Dimensional Data Analysis' (HDDA-IX) will be hosted during 24-27 June, 2019 at Uppsala University, Sweden. The conference aims to bring together theoretical and applied researchers and data analysts from all walks of life, working within the broad realm of high-dimensional statistics. People from both academic and non-academic institutions are welcome to participate. We also welcome Ph.D. students working on latest avenues of research within the conference theme to participate. Both oral and poster presentations can be submitted. For details, please visit the webpage. Abstract submission deadline: 15 February 2019.

Integrable Probability summer school May 27–June 8, 2019 Charlottesville, Virginia, USA

w http://vipss.int-prob.org/

The school, held at the University of Virginia, Charlottesville, aims to educate graduate students and young researchers in recent trends around Integrable Probability—a rapidly developing field at the interface of probability / mathematical physics / statistical physics on the one hand, and representation theory / integrable systems on the other.

There will be 4 mini-courses. In Week 1: Dmitry Chelkak (École Normale Supérieure, Paris, France) and Ole Warnaar (University of Queensland, Brisbane, Australia); Week 2: Tomohiro Sasamoto (Tokyo Institute of Technology, Tokyo, Japan) and Paul Zinn-Justin (University of Melbourne, Melbourne, Australia).

We have some NSF support to cover accommodation at a University of Virginia residence hall, and to partially contribute towards travel expenses (the travel support amount depends on the number of interested participants). Preference will be given to graduate students, postdocs, early career researchers, and members of underrepresented groups.

Deadlines:

- To request residence hall accommodation: January 5, 2019

- To request financial support: March 1, 2019
- General registration: April 20, 2019

More information and registration at the website above.

Scientific Committee: Jinho Baik, Alexei Borodin, Ivan Corwin, Vadim Gorin, Leo Petrov Organizers: Leo Petrov, Axel Saenz



Fifth International Workshop on Functional and Operatorial Statistics (IWFOS 2020) June 24–27, 2020. Brno, Czech Republic

w https://iwfos2020.sci.muni.cz/

NEW

Following the success of the previous four meetings held in Toulouse, France (2008), Santander, Spain (2011), Stresa, Italy (2014) and A Coruña, Spain (2017), it is our pleasure to announce that the 5th International Workshop on Functional and Operatorial Statistics (IWFOS 2020) will be held in Brno, Czech Republic, from 24th to 27th June, 2020.

The workshop will be a platform for communication, exchange of ideas and interaction for researchers in statistics for infinite-dimensional and high-dimensional problems. During these days it will offer invited talks and contributed oral and poster communications on theory, methods and applications in the vibrant field of functional data analysis.

We aim to organize an enjoyable workshop for the participants. Suggestions regarding the format of the workshop are welcome: email iwfos2020@sci.muni.cz.

Design and Statistical Analysis of Clinical Studies January 7–11, 2019. Pala, Kerala, India

NEW

w http://stcp.ac.in/

As part of its diamond jubilee celebrations, the Department of Statistics, St. Thomas College Pala is organizing this international workshop. The goal of this workshop is to provide a thorough review of statistical issues related to the design, management and statistical analysis of clinical studies. The discussions will focus on practical and modern methodological approaches relevant to such studies, and the concepts and statistical methods will be illustrated using examples motivated by real applications (such as diabetes and cancer). The workshop will be a combination of lectures and hands-on data analyses, and it will welcome open discussions and sharing of experiences and ideas.

More meetings around the world

Applied Stochastic Models and Data Analysis International Conference (ASMDA2019) and Demographics2019 Workshop June 11–14, 2019 Florence, Italy

w http://www.asmda.es/asmda2019.html

Submit an abstract, paper, invited talk and/or an invited session (3–6 papers) to the forthcoming ASMDA conference or Demographics workshop. Proposals for plenary and keynote talks are welcomed.

The publications of the conference include the book of abstracts (electronic and in paper form); electronic proceedings in the web in a permanent website; publications in international journals; and publications in edited books.

The same event will host the Demographics2019 International Workshop (http://www.asmda.es/demographics2019.html). The main focus in on Health State and the optimal retirement age.

National Math Festival Saturday, May 4, 2019



Washington Convention Center, Washington DC, USA w https://www.nationalmathfestival.org/2019-festival/ Join us in the heart of downtown Washington DC, on Saturday, May 4, 2019 for this free, all-ages event!

Whether you bring a friend—or bring the whole family—you will find inspiration and enjoyment. The National Math Festival brings some of today's most fascinating mathematicians together for a wide variety of presentations, performances, short creative films, and hands-on puzzles, games, art-making, mathletic competitions, and more!

To receive email updates about the 2019 National Math Festival, please subscribe to the e-newsletter, via the link on the 2019 festival homepage.

12th Chaotic Modeling and Simulation International Conference (CHAOS2019) June 18–21, 2019. Chania, Crete, Greece

w www.cmsim.org The forthcoming Nonlinear Systems

Conference, titled 12th Chaotic Modeling and Simulation International Conference (CHAOS2019) will be hosted in the Cultural Centre of Chania on the Greek island of Crete.

Chaos theory has developed rapidly in the last decades. With CHAOS2019 we celebrate 12 years of active presence in the field via the annual conference, the proceedings and publications in books and the CMSIM Journal (www.cmsim. eu).

For more information, abstract submission and special session proposals please visit the conference website or send email to Secretariat@cmsim1.org.



IMS members receive a 40% discount. Order from cambridge.org/ims Hardback \$89.99 \$53.99 Paperback \$34.99 \$20.99 eBook \$28.00 \$16.80 The Poisson process, a core object in modern probability, enjoys a richer theory than is sometimes appreciated. This volume develops the theory in the setting of a general abstract measure space, establishing basic results and properties as well as certain advanced topics in the stochastic analysis of the Poisson process. Also discussed are applications and related topics in stochastic geometry, including stationary point processes, the Boolean model, the Gilbert graph, stable allocations, and hyperplane processes.

Comprehensive, rigorous, and self-contained, this text is ideal for graduate courses or for self-study, with a substantial number of exercises for each chapter. Mathematical prerequisites, mainly a sound knowledge of measure-theoretic probability, are kept in the background, but are reviewed comprehensively in the appendix.

The authors' approach is informed both by their research and by their extensive experience in teaching at undergraduate and graduate levels.

Employment Opportunities around the world

Canada: Burnaby, BC

Simon Fraser University Assistant Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=45122303

Canada: Toronto, ON

University of Toronto

Associate Professor, Statistical Information http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44556855

Canada: Toronto, ON

University of Toronto, Department of Statistical Sciences Assistant Professor, Statistical Information http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44556850

Canada: Waterloo, ON

University of Waterloo, Department of Statistics & Actuarial Science Tenure-track or tenured faculty positions in Statistics or Biostatistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44708616

Canada: Waterloo, ON

University of Waterloo Tenure-track or Tenured position in Actuarial Science http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44708605

China: Shenzhen, Guangdong

The Chinese University of Hong Kong, Shenzhen Tenured/tenure-track faculty positions http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=43646674

Germany: Magdeburg Otto-von-Guericke University, Magdeburg, Germany Professorship in Statistics or Applied Probability http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44826273

Hong Kong: Kowloon City University of Hong Kong Dean of School of Data Science http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44965238

Netherlands: Enschede

University of Twente

Assistant Professor in Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44796064

Netherlands: Tilburg

Tilburg University, Econometrics & Operations Research

Two Assistant Professor Positions in Econometric Theory http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44495646

New Zealand: Auckland

The University of Auckland Professional Teaching Fellow/ Lecturer/ Senior Lecturer/ Associate Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44684835

New Zealand: Wellington

Victoria University of Wellington Professor in Statistics and Data Science http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=45261567

Saudi Arabia: Thuwal

KAUST (King Abdullah University of Science and Technology) Faculty Position in Statistical Data Science http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=45102888

Sweden: Stockholm

KTH, Royal Institute of Technology Postdoc http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=38183763

United Kingdom: Cambridge

Department of Pure Mathematics and Mathematical Statistics, University of Cambridge University Lecturer in Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44495724

United Kingdom: Glasgow

University of Glasgow L/SL/R In Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44765765

More Employment Opportunities

United States: Auburn, AL

Auburn University, Department of Mathematics and Statistics Assistant Professor - Data Science http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44496788

United States: Auburn, AL

Auburn University, Department of Mathematics and Statistics Assistant/Associate Professor - Biostatistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44638120

United States: Berkeley, CA

UC Berkeley Visiting Assistant Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44189747

United States: Riverside, CA

University of California, Riverside Assistant/Associate Professor of Teaching, Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=45084755

United States: Santa Cruz, CA

University of California, Santa Cruz Statistics: Professor and Chair of Statistics Department (open until filled, initial review 1/07/19) http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44468896

United States: Stanford, CA

Stanford University Associate or Full Professor in Statistics or Probability http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=43561975

United States: Stanford, CA

Stanford University Assistant Professor in Statistics or Probability http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=43561952

United States: New Haven, CT

Yale School of Public Health Tenure-track Faculty Positions in Biostatistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44455650

United States: New Haven, CT

Yale University: Faculty of Arts and Sciences Social Sciences: Statistics and Data Science

Openings for Assistant, Associate, and Full Professor Positions http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44622932

United States: Storrs, CT

University of Connecticut, Storrs

Assistant/Associate Professor, Department of Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44534565

United States: Lowell, MA

University of Massachusetts Lowell Assistant Professor of Mathematics-Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44765780

United States: Williamstown, MA

Williams College Visiting Assistant Professor of Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=43344339

United States: Detroit, MI

Wayne State University Faculty http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44799251

United States: East Lansing, MI

Michigan State University Tenured Faculty Position http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44967832

United States: Duluth, MN

University of Minnesota, Duluth Assistant Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44684031

United States: Durham, NC

Duke University, Statistical Science Open Rank Professor of the Practice http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=42550856

United States: Durham, NC

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United States: Philadelphia, PA

University of Pennsylvania, Wharton Department of Statistics Assistant, Associate, or Full Professor of Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=43949959

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Wharton Department of Statistics, University of Pennsylvania Departmental Postdoctoral Researcher

The Department of Statistics of the Wharton School, University of Pennsylvania, is seeking candidates for a Departmental Postdoctoral Researcher position in the area of statistics and/ or probability. The position is designed to be a career-building step for new scholars. The primary focus is for the scholar to develop her/his research program. A light teaching load will also be part of the position. The position will start in Summer 2019 and continue for two years with a possible extension to three years. A competitive salary will be provided.

Candidates should show outstanding capacity for research, as well as excellent communication skills. Applicants must have a Ph.D. from an accredited institution.

Please visit our website, https://statistics.wharton.upenn. edu/recruiting/dept-postdoc-position, for a description of the department and a link to submit a CV and other relevant material. Any questions should be directed by e-mail to stat.postdoc.hire@wharton.upenn.edu.

The University of Pennsylvania is an EOE. Minorities / Women / Individuals with disabilities / Protected Veterans are encouraged to apply.

United States: Philadelphia, PA

University of Pennsylvania, Wharton Department of Statistics Departmental Postdoctoral Researcher http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=45122063

United States: Memphis, TN

The University of Memphis Assistant Professor - Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44461700

United States: Houston, TX

Rice University Teaching Professor Positions in Data Science http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44638154

United States: Fairfax, VA

George Mason University, Statistics

Department Chair and Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44468062

United States: Fairfax, VA

College of Health and Human Services at George Mason University

Multiple Open-Rank Biostatistics / Data Science Faculty Positions http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44853686

United States: Norfolk, VA

Old Dominion University

Data Science and Computational Statistics - Assistant Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44534307

United States: Norfolk, VA

Old Dominion University

Statistics - Tenure-Track Assistant Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=45084881

United States: Tacoma, WA

UW Tacoma School of Interdisciplinary Arts and Sciences

Assistant Professor in Statistics http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=44654611

United States: Madison, WI

University of Wisconsin-Madison, Department of Statistics Assistant Professor http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=43949962

International Calendar of Statistical Events

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

January 2019

ims January 3-5: Pune, India. Computer Age Statistics in the Era of Big and High-Dimensional Data w https://www.iccas19pune.org/

January 7–11: Pala, India. Design and Statistical Analysis of Clinical Studies w http://www.stcp.ac.in/admin/downloadcenter/ admindownloaditem2189Brochure_Stati.pdf

January 18–19: Gainesville, FL, USA. Statistics Winter Workshop 2019 w https://informatics.institute.ufl.edu/event/statisticsannual-winter-workshop-2019-recent-advances-in-causalinference-and-mediation-analysis-and-their-applications/

January 19–20: La Jolla, CA, USA. Statistics & Data Science: Beyond big, corrupted or missing data w http://hdsi.ucsd. edu

January 21–23: Lunteren, The Netherlands. 18th Winter School on Mathematical Finance w https://staff.fnwi.uva.nl/p.j.c.spreij/ winterschool/winterschool.html

January 21–23: Lahore, Pakistan. 17th International Conference on Statistical Sciences w http://isoss.net/Brochure%2017th%20Conf.pdf

January 21–25: Bangkok, Thailand. 3rd Bangkok Workshop on Discrete Geometry, Dynamics and Statistics w http://www.thaihep.phys.sc.chula.ac.th/BKK2019DSCR/

February 2019

February 11–15: Hawassa, Ethiopia. Hawassa Stat & Math Conference 2019 w http://www.hu.edu.et/mathstatconf/

February 13–15: Hobart, Tasmania, Australia. Matrix-Analytic
 Methods for Stochastic Models (MAM10)
 w http://www.maths.utas.edu.au/People/oreilly/mam/mam10.html

February 14–16: New Orleans, USA. Conference on Statistical Practice w https://ww2.amstat.org/meetings/csp/2019/

March 2019

March 6-8: Zanjan, Iran. 5th Conference on Contemporary Issues in Data Science (CiDaS) w https://cidas.iasbs.ac.ir/ March 13–16: Salt Lake City, USA. 2019 Seminar on Stochastic Processes w http://www.math.utah.edu/SSP-2019/

March 24–27: Philadelphia, PA, USA. **ENAR Spring Meeting w** http://www.enar.org/meetings/future.cfm

March 29–30: Augusta, GA, USA. Emerging Data Science Methods for Complex Biomedical and Cyber Data w https:// www.augusta.edu/mcg/dphs/workshop

April 2019

April 23–26: Paris, France. International Conference on Control, Decision and Information Technologies (CoDIT'19) w https://codit19.com

April 23–26: Vienna, Austria. 8th International Conference on Risk Analysis and Design of Experiments w https://icr8.boku.ac.at/

April 25–26: Birmingham, UK. 2nd IMA and OR Society Mathematics of Operational Research w https://ima.org. uk/9649/2nd-ima-and-or-society-conference-on-mathematics-ofoperational-research/

May 2019

May 1-3: Knoxville, TN, USA. NIMBioS/DySoC Investigative Workshop: Mathematics of Gun Violence w http://www.nimbios.org/workshops/WS_gunviolence

May 4: Washington DC, USA. National Math Festival w https://www.nationalmathfestival.org/2019-festival/

May 10–12: Atlanta, GA, USA. 7th Workshop on Biostatistics and Bioinformatics w https://math.gsu.edu/ yichuan/2019Workshop/

May 13–15: Knoxville, TN, USA. NIMBioS Investigative Workshop: Scientific Collaboration Enabled by High Performance Computing w http://www.nimbios.org/workshops/WS_hpc

May 25–26: Athens, Greece. 3rd International Conference On Quantitative, Social, Biomedical & Economic Issues 2019 – ICQSBEI 2019 w https://icqsbei2019.weebly.com

May 27–June 8: Charlottesville, VA, USA. Integrable Probability summer school w http://vipss.int-prob.org/ May 29–31: Knoxville, TN, USA. NIMBioS Investigative Workshop: Transients in Biological Systems w http://www.nimbios.org/workshops/WS_transients

May 29–June 1: Bellevue, Washington DC, USA. Symposium on Data Science and Statistics w http://ww2.amstat.org/meetings/sdss/2019/

June 2019

June 3–7: Knoxville, TN, USA. NIMBioS: The Search for Selection w http://www.nimbios.org/tutorials/selection2

June 4–7: El Escorial, Spain. SYSORM 2019 w https://eventos.ucm.es/go/sysorm19

June 9–15: West Greenwich, RI, USA. Stochastic Spatial Models, AMS MRC summer conference **w** http://www.ams.org/programs/ research-communities/2019MRC-Stochastic

June 10–14: Toronto, Canada. Workshop on Theory and Applications of Stochastic Partial Differential Equations w http://www.fields.utoronto.ca/activities/18-19/SPDEs

June 11–14: Florence, Italy. Applied Stochastic Models and Data Analysis International Conference (ASMDA2019) and Demographics2019 Workshop w http://www.asmda.es/asmda2019.html

June 12–14: Delft, The Netherlands. DYNSTOCH 2019 w http://web.math.ku.dk/~michael/dynstoch/

June 16–19: Thessaloniki, Greece. 39th International Symposium on Forecasting w https://isf.forecasters.org/

June 18–21: Binghamton, USA. **7th International Workshop on Sequential Methodologies (IWSM) w** http://sites.google.com/view/iwsm2019

June 18–21: Chania, Greece. 12th Chaotic Modeling & Simulation International Conference (CHAOS2019) w http://www.cmsim.org/

June 19–21: Lima, Peru. VI Congreso Bayesiano de América Latina / Bayesian Congress of Latin America (VI COBAL) w https://sites.google.com/site/cobal2019/

June 19–22: Manizales, Colombia. 3rd International Congress on Actuarial Science and Quantitative Finance w http://icasqf.org/

June 24–27: Uppsala, Sweden. Perspectives on high-dimensional data analysis (HDDA-IX) w https://indico.uu.se/event/526/overview June 24–28: Oxford, UK. 12th International Conference on Bayesian Nonparametrics w http://www.stats.ox.ac.uk/bnp12/

June 23–26: Portland, OR, USA. 2019 WNAR/IMS meeting w http://www.wnar.org/event-3013994

Bayes Methodology Conference w https://warwick.ac.uk/fac/sci/ statistics/staff/academic-research/robert/0bayesconference/

July 2019

July 1–9: Zagreb, Croatia. 11th International Conference on Extreme Value Analysis w http://web.math.hr/eva2019

as previously listed]: Brisbane, Australia. 20th INFORMS Applied Probability Conference w http://informs-aps.smp.uq.edu.au/

Conference w [NEW WEBSITE] http://www.ims-china.org

July 8–12: Evanston, IL, USA. 41st Conference on Stochastic Processes and their Applications (SPA) w http://sites.math.northwestern.edu/SPA2019/

July 8–12: Guimaráes, Portugal. International Workshop on Statistical Modelling (IWSM2019) w http://www.iwsm2019.org/

July 14–18: Leuven, Belgium. 40th Conference of the International Society for Clinical Biostatistics w http://www.icsb.info

w https://iciam2019.org/index.php

July 22–26: Palermo, Italy. European Meeting of Statisticians 2019 w http://www.ems2019.palermo.it

July 23–25: Kuantan, Malaysia. 2nd International Conference on Applied & Industrial Mathematics and Statistics 2019 (ICoAIMS 2019) w http://icoaims.ump.edu.my/index.php/en/

July 27–August 1: Denver, CO, USA. IMS Annual Meeting at JSM 2019 w http://ww2.amstat.org/meetings/jsm/2019/index.cfm

August 2019

August 17–19: St. Louis, USA. 4th Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI) w https://www.math.wustl.edu/~kuffner/WHOA-PSI-4.html

August 18–23: Kuala Lumpur, Malaysia. ISI2019: 62nd International Statistical Institute World Statistics Congress 2019 w http://www.isi2019.org/

International Calendar continued

September 2019

September 22–26: Hannover, Germany. 29th European Safety and Reliability Conference (ESREL 2019) w https://esrel2019.org/

September 23–25: Washington DC. ASA Biopharmaceutical Section: Regulatory-Industry Statistics Workshop w https://ww2.amstat.org/meetings/biop/2019/

October 2019

October 3–5: Bellevue, WA, USA. 2019 Women in Statistics and Data Science Conference w https://ww2.amstat.org/meetings/ wsds/2019

October 10–12: Grand Rapids, USA. 3rd International Conference on Statistical Distributions and Applications (ICOSDA 2019) w http://people.cst.cmich.edu/lee1c/icosda2019/

December 2019

Ims December 2–6: Mérida, México. XV CLAPEM: Latin American Congress of Probability and Mathematical Statistics w http://clapem2019.eventos.cimat.mx/

March 2020

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

June 2020

June 15–18: New Orleans, LA, USA. Sixth International Conference on Establishment Statistics (ICES-VI) w http://ww2.amstat.org/meetings/ices/2020/

June 22–26: Sydney, Australia. International Statistical Ecology Conference (ISEC2020) w http://www.isec2020.org/

June 24–27: Brno, Czech Republic. Fifth International Workshop on Functional and Operatorial Statistics (IWFOS 2020) w https://iwfos2020.sci.muni.cz/

July 2020

July 5–11: Portoroz, Slovenia. 8th European Congress of Mathematics. w http://www.8ecm.si/

August 2020

Ims August 1–6: Philadelphia, PA, USA. **JSM 2020 w** http://www. amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

Lims August 17–21: Seoul, Korea. Bernoulli/IMS World Congress in Probability and Statistics w TBC

March 2021

Wims March 14–17: Baltimore, MD, USA. **ENAR Spring Meeting** w http://www.enar.org/meetings/future.cfm

August 2021

August 7–12: Seattle, WA, USA. IMS Annual Meeting at JSM 2021 w http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

March 2022

March 27–30: Houston, TX, USA. ENAR Spring Meeting w http://www.enar.org/meetings/future.cfm

August 2022

July/August: Location TBC. IMS Annual Meeting w TBC Markov TBC, USA. JSM 2022 w http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

August 2023

at JSM 2023 w http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

August 2024

w http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

August 2025

at JSM 2025 w http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx

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

The *IMS Bulletin* (ISSN 1544-1881) is published eight times per year in January/February, March, April/May, June/ July, August, September, October/November and December, by the Institute of Mathematical Statistics, 3163 Somerset Dr, Cleveland, Ohio 44122, USA. Periodicals postage paid at Cleveland, Ohio, and at additional mailing offices. Postmaster: Send address changes to Institute of Mathematical Statistics, 9650 Rockville Pike, Suite L3503A, Bethesda, MD 20814-3998.

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4:	June/July	May 1	May 15	June 1
5:	August	July 1	July 15	August 1
6:	September	August 15	September 1	September 15
7:	Oct/Nov	September 15	October 1	October 15
8:	December	November 1	November 15	December 1

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