

BIOMETRIC BULLETIN

International Biometric Society Internationale Biometrische Gesellschaft Société Internationale de Biométrie

"Biometry, the active pursuit of biological knowledge by quantitative methods." - R.A. Fisher, 1948

President's Corner

It's hard to believe, but this is my final Presidents Corner contribution to Biometric Bulletin! My two-year term as IBS President finishes on December



31st and Geert Verbeke takes over on January 1st. In some ways I feel like I have been IBS President forever, since the role has absorbed so much of my time and attention over the last couple of years. On the other hand, it feels like I only started yesterday. It really has been an awesome privilege to serve as President. I have gotten to work closely with so many wonderful colleagues, some whom I already knew quite well, but lots of new ones as well. I have particularly enjoyed working with Brad Biggerstaff (VWNAR) whose term as IBS Treasurer/Secretary is also coming to an end on December 31st. Brad has worked hard and introduced some excellent innovations and ideas to help keep IBS financially strong. He is an Excel wizard and has created a couple of invaluable planning tools that will definitely be passed on to future treasurers.

One particularly exciting and rewarding aspect to serving as IBS President was that I got to attend various regional conferences all over the world, including Brazil, Greece, Israel, USA, Israel, South Africa, Korea, Germany and, last but not least, Australia. While I of course knew that IBS was an

international society, I don't think I have ever fully appreciated until these last couple of years just how diverse we are and how our strong regional structure gives us such a unique character and strength. In these modern times where there often seems to be so much division and tension between different countries, a society like ours serves as a force for good that helps to break down barriers and foster greater understanding between cultures. It is for these exact reasons of fostering global collaboration and understanding that our biennial International Biometric Conference (IBC) is so important!

Speaking on which, I hope you have all submitted your abstracts for IBC2020 to be held in Seoul, Korea, from July 5-10, 2020! The deadline for submission was originally December 10, 2019, but in response to popular demand, we have extended the deadline until after the holidays - January 10, 2020. The conference is shaping up really well. The good news is that Seoul promises to be a very exciting venue for IBC. The conference venue COEX (<https://www.coexcenter.com/>) is world class and has lots of exciting entertainment and restaurant facilities in addition to the scientific venue. Our International Program Chair, Renato Assunção, told me that one of his colleagues recently attended a large vision congress at COEX and found it to be super convenient and attractive. The not so good news is that modern venues like COEX don't come cheap. However, our Local Organizing Committee, our Treasurer Brad and the IBO Staff have worked very hard to keep the costs in line. So, when registration opens in just a few more days, you will see that the

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Region Key

Regions

RArg - Argentinean Region
AR - Australasian Region
ROeS - Austro-Swiss Region
RBe - Belgian Region
GBot - Botzwanian Region
RBras - Brazilian Region
BIR - British and Irish Region
RCAC - Central American-Caribbean Region
GCI - Chilean Region
CHINA - Chinese Region
EMR - Eastern Mediterranean Region
ENAR - Eastern North American Region
ECU - Ecuadorian Region
GEth - Ethiopian Region
RF - French Region
DR - German Region
GGha - Ghanian Region
IR - Indian Region
RIIt - Italian Region
JR - Japanese Region
GKe - Kenyan Region
Rko - Korean Region
GMal - Malawi Region
GNi - Nigerian Region
NR - Nordic-Baltic Region
PKSTAN - Pakistani Region
GPol - Polish Region
GRo - Romanian Region
SING - Singaporean Region
GSaf - South African Region
REsp - Spanish Region
ANed - The Netherlands Region
GUgan - Ugandan Region
WVNA - Western North American Region
GZim - Zimbabwean Region

Networks

CEN - Central European Network
CN - Channel Network
EAR - East Asian Network
SUSAN - Sub-Saharan Network

From the Editor

Dear readers of Biometric Bulletin,

This last issue of volume-36 reminds us of several initiatives taken and the academic events organized and reported by a number of IBS regions throughout the calendar year 2019. These very well organized regional informative contributions helped making the Bulletin more interesting and colorful. It seems some of the regions have either not been active or hesitant in reporting their regional activities. We shall be eagerly looking forward for periodic reports from such unreported regions hopefully during the year 2020. The Bulletin succeeded in continuing with its major featured articles and updates including Software Corner and STRATOS along with a few additional columns. We feel grateful to each specific group and the individual contributors of the year 2019. I along with my colleague AE would like to thank our IBS President for her keen interest and timely help in shaping the Bulletin and IBO for their efficient system of continued regular support. This issue brings an article of interest on Statistical Medicine, received in response to Editors call on Innovations. I have decided not to present my regular theme -IV, this time, but shall be continuing further during the coming years. The Bulletin seeks your valuable suggestions, if any, to improve its content further during the year 2020.

Ajit Sahai
Editor Biometric Bulletin

Response to the Editor

Innovation: The Case for Launching Statistical Medicine as a New Medical Specialty

Abhaya Indrayan

Max Healthcare Institute, New Delhi

Medical science takes pride in dividing itself by body parts, organs, and systems, such as cardiology, nephrology, gastroenterology, and neurology. These subjects are recognized as medical specialties and super-specialties. There are also holistic specialties such as computer medicine, translational medicine, and family medicine, which do not concentrate on a particular organ or system. But there are also other disciplines such as academic medicine¹ and legal medicine² that are only indirectly related to the core clinical activities of diagnosis, treatment, and prognosis. They too seem to be flourishing and contributing to improved health care. Amidst such proliferation of different branches of medicine, it is surprising that the idea of launching statistical medicine as a new medical specialty has not received much attention. Statistical medicine was recently proposed as a new medical specialty because of its significant role in the management of health³. That proposal defined statistical medicine as "that part of medical science that uses statistical tools and methods to make decisions regarding health and disease in individuals and communities". The objective of this proposed subject too is to improve health outcomes as is of other specialties of medicine. The article also explained how statistical medicine is very different from clinical epidemiology and medical statistics. The present note tries to strengthen this proposal further and presents its rationale as an innovation of biostatistics.

Statistical medicine can sustain itself on the strength of its undeniable role in establishing and interpretation of reference intervals of various medical parameters; by enlarging the scope of indicators, indexes and scoring systems that can provide direct help to the process of diagnosis, writing prescriptions, and assessing prognosis; and by strengthening the foundation of clinical medicine by incorporating the nuance of the possibility in the decision process. Extensive use of group-based statistical indices such as sensitivity-specificity and positive and negative predictivities, relative risk and odds ratio, and survival curves for durations can also substantially contribute to health management. The following is a brief explanation of how statistical medicine can stand on its own as a medical specialty and help in improved medical outcomes in substantial cases.

Uncertainties are profound in any medical setting, and they can completely derail a medical decision. The process of diagnosis, treatment, and prognosis is always inflicted with such uncertainties, and the management is best done by a judicious mix of probabilities with value judgment of the clinical condition of the patient. For correct application, it is necessary to understand the concept of probability fully well and to learn the rules such as of addition and multiplication, and those governing the concept of conditional probabilities with distinction between probability of disease given complaints ($P(D/C)$) and probability of complaints for known disease ($P(C/D)$). Understanding and proper application of Bayes' rule is a great help in this respect. This rule also helps to understand why predictivities of a medical test can be poor despite high sensitivity and specificity.

The referenced article³ provides details of how statistical indicators, indexes, and scoring systems have pervaded the medical science and used for clinical decisions. It would help to realize that a measurement such as albumin level is a medical indicator of an aspect of liver function, whereas pain score on a 0 to 10 scale and APGAR score for a newborn are statistical indicators. These indicators are univariate entities, whereas indexes are a combination of two or more indicators. Shock index, albumin-globulin ratio, and body mass index are already in extensive use and have proven utility in medical care. Scoring systems combine several indicators and indexes, including qualitative characteristics such as previous surgeries, cardiac events, and old age. APACHE is the most popular example of such a scoring system⁴. A large number of indicators, indexes and scoring systems exist, and more can be developed to provide direct assistance in establishing a diagnosis, prescribing treatment, and assessing prognosis. However, they must pass through the rigors of reliability and validity so that they help and not mislead. They must also be tested in a variety of settings for their robustness. All this requires statistical knowledge and competence that can be imparted in the specialty of statistical medicine to those surgeons and physicians who are quantitatively inclined.

Reference intervals of quantitative parameters, particularly those that are laboratory based, are extensively used for diagnosis and for calibrating the treatment regimen, and in some cases, for assessing the prognostic implications. While these in most cases are considered for granted, few realize that most such intervals are statistical and based on 2.5th percentile and 97.5th percentile values seen in healthy persons and they exclude 5% healthy values. The cutoffs are not absolute and the marginal values always require additional caution in interpretation. Even the expert-determined cutoffs such as 140/90 mmHg for hypertension and 126

mg/dL fasting glucose level for diabetes are not infallible since they are based on evaluation of chances (probability) of developing a condition with adverse health implications. The use of such intervals and cutoffs may become much more appropriate when the probability implications are fully realized.

Indicators, indexes, scoring systems, and reference intervals are statistical entities that are directly used in individual cases for medical care. There are several other indicators that are group-based but are used for clinical decisions in individual cases. Prominent among them are positive and negative predictivities of a test, which are kind of inversely related to sensitivity and specificity. Knowledge of Bayes' rules helps to appreciate the distinction between these two concepts and to understand how the prevalence of disease plays a dominant role in determining the predictivities. The 'test' here is not necessarily a laboratory or radiological investigation but can also be the clinical condition of patient in terms of signs and symptoms.

Relative risk and odds ratio are also calculated by a study on groups but are used on individual patients to assess the risk of disease or the chance of recovery in the presence or absence of specific factors. Similarly, the results of survival analysis are used to assess the duration of survival, duration of hospitalization, and such other durations. Even though an average patient does not exist⁵, the results of clinical trials, laboratory experiments, and observational studies have been found useful in clinical applications. All these results are statistical in nature and fraught with aleatory and epistemic uncertainties⁶. The subject of statistical medicine can raise the bar and place these results on a firm footing so that they can be used with confidence in the management of diseases. Although statistical methods have a substantial role in empirical research in health and medicine but these are not included in the present communication as the focus is on clinical applications and medical care. The rationale described above indicates that statistical medicine has a great potential to come up on its own as a medical specialty and can fulfill the primary objective of improved outcome in many cases. We know that no medical specialty can manage all the cases – for example, endocrinology is only for endocrine related disease and nephrology only for kidney diseases. Statistical medicine has applications across organs and systems, just like family medicine and legal medicine, although it too cannot manage all the cases. But it can provide invaluable help in the management of several conditions just as radiology and laboratory medicine do and would have a much more direct role than, for example, academic medicine. It is time to recognize statistical medicine as a medical specialty. This could be developed further with the help of interested medical professionals and adopted as an innovation of biostatistics. Statistical medicine can exist and flourish only with the help of medical professionals but it is on to the biostatisticians to make a case and convince them that it is not just a viable but also a useful specialty for medical care.

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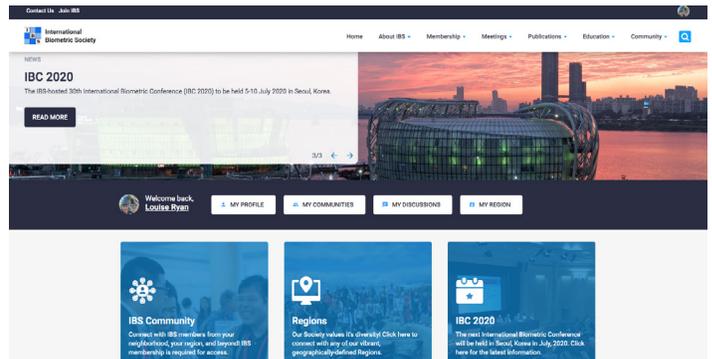
President's Corner

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costs are not too different from what we had for Barcelona. The conference management company, MCI, that is helping us with planning for IBC has also done a great job in negotiating good hotel rates for us. I have just booked my own hotel and was impressed to see that the price negotiated for our conference was about a third less than what I could book myself through an online service such as Expedia. If you check out our IBC website, you will also find some interesting alternative accommodation options, including temple stays and guest houses. Finally, our LOC is working hard in collaboration with MCI to come up with a slate of interesting excursion options. As you know, it is tradition for the Wednesday of our IBC week to be free for excursions in the local city or nearby environs. When our Executive Director, Peter Doherty, and I did a site visit to Seoul a couple of years back, we went on some very interesting tours of the local temples, as well as the traditional markets and old residential areas of Seoul. One of the options currently being explored as an IBC excursion offering is a trip to the Korean Demilitarized Zone, which apparently is an easy bus ride from Seoul. I think that sounds very interesting and hope I can sign up for that one!



As you will have seen from the recent email I sent you, I am hoping that IBS will be able to offer quite a few travel scholarships to support our members from countries that have been classified by the World Bank as Low or Middle Income. It has been our tradition for a long time to ask all the regions to contribute to the scholarship fund, which IBS then matches. The photo here shows a couple of our IBS Executive Board members with some of the scholarship recipients for IBC2018 in Barcelona. For IBC2020, I would like to see this group be MUCH bigger! So in addition to encouraging our regions to be generous, I would like to encourage individual contributions to the scholarship fund as well. Some people may have access to end of year funds that would otherwise disappear, or perhaps you could claim a tax deduction for 2019 by donating now. To get the ball rolling, I have myself donated \$1000 to the fund. If you would like to donate, you can click the DONATE button on the IBC webpage or just click [here](#). If you prefer not to pay in USD, you can also contact your local region and ask them to include your donation when they send in their regional contribution. I guarantee that any donated funds will go in their entirety to supporting our LMIC colleagues to attend IBC in Seoul. If you are from an LMIC and are interested in applying for funding, please make sure to indicate this when you submit your IBC abstract.



A major focus of my attention during my two years as President has been to get our IBS website updated. I am delighted to report that things are going well and the new site is close to launch. We actually thought about launching before the holidays, but decided it would be better to give our beta-testing group a little bit longer to explore and identify any errors or glitches. Stay tuned for the launch in early January. The new site has an appealing modern look (see the sneak preview). I've mentioned before that I am particularly excited about the community facility that is being built into the new site. While we are still working to understand its full capacity, there is potential here to offer a convenient mechanism to facilitate communication among members of various regions, committees or other relevant defined groups. Once the site is up and running, my next step will be to start working towards creating an IBS Young Statisticians Community. There is potential offered by the company that will host our new site, Higher Logic, to implement a Mentor Match facility as well. If you are interested to get involved, please get in touch with me (Louise.M.Ryan@uts.edu.au). Helping to get our IBS Communities functioning efficiently will be one of my major tasks as Outgoing President for 2020.

Finally, as has been my practice for my past three Presidents Corner contributions, I would like to respond to the Basic Theme challenge issued in the previous Biometric Bulletin by our Editor, Professor Ajit Sahai. His last several themes have talked about the concept of uncertainty. This is something I have thought about a lot over the course of my career, particular in relation to environmental decision making, as discussed in my last President's Corner. As statisticians, thinking about uncertainty is our bread and butter. In the previous Issue, Professor Sahai talked about how the nature of variability changes according to the phase of life, and he distinguishes three phases: 1) making/shaping; 2) maintenance; 3) deteriorating/declining/destruction. In human terms we might refer to childhood, adulthood and old age. I suppose I must admit to falling into the third phase, which he describes as the "deteriorating/declining/destruction phase". While I understand the point that he is making, I find it troubling that these words all have a negative connotation. Could we consider something such as the "reflective/seasoned/wisdom phase"? You get my drift I'm sure! Professor Sahai talks about the challenge of find ways to measure phenomena or characteristics that perhaps span across these different phases. I have encountered exactly this challenge in one of my current projects with some colleagues from Wayne State University in the USA, Joseph and Sandra Jacobson, who have an NIH grant to study the impact of in-utero exposure to alcohol on child growth and development. Our challenge is that the psychometric tools used to measure child development change according to a child's age. So although we have a rich longitudinal dataset tracking the children from birth through the teenage years, it is

very difficult to construct appropriate longitudinal models because the nature of the measurement change quite dramatically. We are using structural equations and other sorts of models that hypothesize the existence of an underlying, but latent construct related to cognition. It is a challenging project, but very exciting. Here's a link to a [press release](#) from a couple of years ago, describing the project. With luck, our project postdoc, Dr Tugba Akkaya-Hocagil from University of Waterloo, will present some of the work at IBC. She has presented some of it already this very week at the IBS Australasian Regional Meetings.

Anyway, that's it from me! It's been fun ---- see you in Seoul!

Louise Ryan
IBS President & IBC Organizing President

Thank You to outgoing IBS Committee Members

Often in the background, but very much a part of the IBS governance structure, are our standing committees. Each committee is made up of volunteers from nearly every IBS Region. At this time, the IBS would like to thank those committee members and Chairs whose terms are ending 31 December, 2019 for their service to the Society.

While the personal background and expertise of each volunteer varies, it is the unique combination of these members' viewpoints and skills that is crucial to the successful completion of our committee projects. Some of these projects last more than a year, while some are much shorter but still require significant focus and collaboration.

The volunteers listed below performed admirably in representing and doing the work of the IBS membership for four, or even eight years! Please help us in thanking these dedicated committee members:

Representative Council

Chair, Iris Pigeot

Awards Fund Committee

Sergio Bramardi, Brenton R. Clarke

Committee on Communications

Chair, KyungMann Kim, Daniel Farewell, Stefania Galimberti, Afranio Vieira

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Education Committee

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Budget and Finance Committee

Chair, Martina Mittlebock, Daniel Commenges, Weng Kee Wong

International Biometric Conference (IBC 2020)



Early Bird Registration is OPEN!

You're invited to the International Biometrics Conference in Seoul, Korea to collaborate with leaders and students in biometrics! Register today to experience a dynamic scientific and social program that will inspire.

[Learn More & Register](#)



Here is a first look at the conference.



David Donoho

Anne T. and Robert M. Bass Professor of Humanities and Sciences, Professor of Statistics, Stanford University

David Donoho is a mathematician who has made fundamental contributions to theoretical and computational statistics, as well as to signal processing and harmonic analysis. His algorithms have contributed significantly to our understanding of the maximum entropy principle, of the structure of robust procedures, and of sparse data description.



Dianne Cook

Professor, Monash University in Australia

Dianne Cook is an internationally acclaimed expert in the visualization of high dimensional data. Trained in mathematical statistics, her passion is the development and application of tools and strategies for making sense of very large and complex data, for example that might arise from technologies such as virtual reality and eye-trackers. She is a co-author of the popular package

GGobi for interactive exploration and visualization of complex multivariate data.



Peter Diggle
Distinguished Professor at Lancaster University in the UK

Peter Diggle is a world-leading expert on the analysis of data that are correlated over time and space. He has worked in a variety of application areas, mostly in the biomedical, clinical and health sciences, though he also has a broad interest in environmental science.



Yoav Benjamini
Nathan and Lily Silver Professor of Applied Statistics, Tel Aviv University

Yoav Benjamini will be speaking in a special session organized by the International Statistics Institute (ISI) and where he will receive the 2019/2020 Pearson Prize, which “recognizes a contemporary research contribution, published within the last three decades, that has had a profound influence on statistical theory, methodology, practice, or applications”. In Yoav’s case, the award will honor his work with colleague Yosi Hochberg (deceased in 2013) on the False Discovery Rate (FDR). Their 1995 paper, cited more than 50,000 times, has become a central element in the analysis pipeline for very high dimensional data, especially in the area of genomics.

And finally, check out the selected [Invited Sessions](#) and pre-conference [Short Course Sessions](#).

Call for Contributed Session - Deadline Extended

We have extended the deadline for contributed session submission to **10 January 2020!** There is still plenty of space in the scientific program for YOUR abstract! A link to the submission system for the concurrent sessions abstracts is available here: <https://ibc2020.abstractcentral.com/>.

We urge you to consider submitting your ideas soon. After all, we would hate for the next big session idea to be excluded because the submission deadline was missed. Please share this information



and link with your colleagues!

Seoul, the capital of South Korea, is a huge metropolis where modern skyscrapers, high-tech subways, and pop culture meet Buddhist temples, palaces, and street markets.

The evolution of Seoul exemplifies as a city makes it the perfect place to host IBC 2020. Read about our host venue COEX (Convention & Exhibition Center) and learn about getting to Seoul.

[Traveling to Seoul](#)

International Travel: for those traveling internationally, you may refer to our website for important travel and visa information

[Visa Information](#)

Accommodations: Seoul is a city that offers a wide range of accommodation options with a large diversity of types of prices. From hostels, temple stays and luxury hotels. Even campgrounds and guesthouses. On this page below you can find a variety of hotels and residences. We hope this information will help you find a proposal that best fits your requirements.

[Where to stay](#)

Visit IBC2020.org to explore the conference program and to register!

Save the Date | Future International Biometric Conference (IBC)

XXXI International Biometric Conference - IBC 2022
July 10 - 15, 2022
Radisson Blu Latvija Conference & Spa Hotel, Riga Latvia

IBS Awards

Call for IBS Award Nominations

The International Biometric Society (IBS) is pleased to announce that nominations are being accepted for three of the Society's most revered awards:

[Honorary Life Membership](#)

[The Rob Kempton Award for Outstanding Contribution to the Development of Biometry in the Developing World](#)

[The Award for Outstanding Contribution to the Development of the IBS.](#)

Nominations will be accepted by Regional Presidents or Network Coordinators through **21 February 2020**. Award recipients will be honored during [IBC 2020 in Seoul, Korea](#). We look forward to the celebration!

IBC 2020 Travel Award Applications

In recent years, the Travel Award program has become quite competitive. Grants are made available through the financial support of the International Biometric Society (IBS), IBS Regions/Networks, and individuals, to provide assistance to IBS members from Low-and-Middle Income countries to attend IBC 2020. Recipients of the award will receive funds to cover conference registration fees, accommodations, and airfare. Eligibility to apply includes:

1. You must be a current member of IBS residing in a Low-and-Middle Income Country
2. You must have submitted an abstract in response to the IBC2020 Call for Contributed Papers.
3. You must not have received grant funding from the IBS within the past four years (inclusive of IBC2016, IBC2018, or during any non-IBC year).

You can apply only at: <https://forms.gle/YzrnefVvTRRh1sQi9>. **The application deadline is 19 January 2020.** For additional information please visit the IBC 2020 website [here](#).

Network & Inter-Regional Funding Program - Application Information for 2020

Applications for the Network & Inter-Regional Funding program are now being accepted for activities that are scheduled to start in the second half of 2020 (July 1 - December 31). Application should be sent to conference@biometricsociety.org no later than March 31, 2020.

- You must not have received grant funding from the IBS within the past four years (inclusive of IBC2016, IBC2018, or during any non-IBC year).
- Regions or Networks should send their proposal for a Network or Inter-Regional activity to the taskforce of the Representative Council, using the email: conference@biometricsociety.org

- In general, a Region or a Network can apply for only one activity in a single funding round. Deviations from this rule need a particular justification.
- Regions or Networks must demonstrate how funded activities will reinforce links between regions.

To review the full list of guidelines and conditions please visit our website: <https://www.biometricsociety.org/meetings-events/network-and-inter-regional-activities-funding-programme/>

Post Conference Update

Dr. Serifat Folorunso, 2019 IBS-ISI Young Ambassador Award

World Statistical Conference, Kuala Lumpur, Malaysia

It is indeed a great privilege for me to receive IBS young ambassador to the ISIWSC 2019 at Kuala Lumpur, Malaysia from 18 to 23rd August, 2019. The ISI WSC2019 with the theme: COME, CONNECT, and CREATE which kicked off with YS-ISI workshop at Sasana Kijang on August 18 organized by ISI young statistician committee. It was an honor to listen to IBS president Louise Ryan on 'Tips for Navigating a successful and rewarding career' and former ISI past president Pedro Luis do Nascimento Silva from Brazil whom I picked my ISI WSC 2019 quote from his talk. The Quote goes thus 'Plan for and Invest in attending professional conferences. They enable opportunities for concentrated exposures to what's going on and novelties. Use them to plan your forthcoming personal development activities by defining priority areas or topics for learning. Exploiting their networking opportunities to engage in other learning activities.'

As IBS young ambassador to the WSC 2019, I was privileged to have excellent opportunity to expand my network and interact with young members of the ISI. I was able to connect with former IBS young ambassador Tamanna Howlader from Institute of Statistical Research and Training (ISRT), University of Dhaka Bangladesh. She invited me to two sessions that she organized. The sessions are mainly for young statistician which includes the IPS 65: Statistics in Forensic Science on 19th August 10:30 a.m. - 12:30 p.m. The session was chaired by Paulo C. Rodrigues, from Federal University of Bahia, Brazil with vibrant speakers: Karen Kafadar, University of Virginia, Micheal Schuckers, St. Lawrence University, Svetlana Borokova, Vrije Universiteit Amsterdam and Jane L. Hutton, University of Warwick. The session was an eye opener to me and I really learnt a lot from the speaker. The second session was STS 567: Effective Communication: What Every Young Statistician Should Know on 19th August; 4:00 p.m. - 5:40 p.m and Chaired by Jane L. Hutton from University of Warwick. The Speakers are Louise M Ryan, IBS president from University of Technology Sydney, John Bailer, ISI elected president from Miami University and Emi Tanaka from The University of Sydney. I can never forget what Prof Tanaka shared with us and my conclusion was that that social media is a good and effective communicative path for young statistician. It was my pleasure to meet an excellent female speaker Elisabetta Carfagna from University of Bologna, Italy who is one of the at IBS invited paper session on 20th August 10:30 am - 12:30 pm organized by Alison Kelly from the IBS-AR I joined lunchtime discussion on Artificial Intelligence (AI) in medical research which was chaired by Alaba Lamidi-Sarumoh on

Editorial Update

Biometrics

March 2020 Issue Highlights

The upcoming March 2020 issue boasts an exciting array of applied and methodological articles. A sample of the exquisite array of papers in the Biometric Methodology section is: "Robust Inference for the Stepped Wedge Design," by James P. Hughes, Patrick J. Heagerty, Fan Xia, and Yuqi Ren; "Semiparametric Mixed-Scale Models Using Shared Bayesian Forests," by Antonio R. Linero, Debajyoti Sinha, and Stuart R. Lipsitz; "Estimation of covariance matrix of multivariate longitudinal data using modified Choleksky and hypersphere decompositions," by Keunbaik Lee, Hyunsoon Cho, Min-Sun Kwak, and Eun Jin Jang; "Testing Independence Between two Random Sets for the Analysis of Colocalization in Bio-Imaging," by Frederic Lavancier, Thierry Pecot, Liu Zengzhen, and Charles Kervrann; "Adaptive treatment allocation for comparative clinical studies with recurrent events data," by Jingya Gao, Pei-Fang Su, Feifang Hu, and Siu Hung Cheung; "Robust inference on the average treatment effect using the outcome highly adaptive lasso," by Cheng Ju, David Benkeser, and Mark J. van der Laan; "Building Generalized Linear Models with Ultrahigh Dimensional Features: A Sequentially Conditional Approach," by Qi Zheng, Hyokyung G. Hong, and Yi Li; "Improving estimation efficiency for regression with MNAR covariates," by Menglu Che, Peisong Han, and Jerald F. Lawless; "A geostatistical framework for combining spatially referenced disease prevalence data from multiple diagnostics," by Benjamin Amoah, Peter J. Diggle, and Emanuele Giorgi; and "A Bayesian Approach to Joint Modeling of Matrix-valued Imaging Data and Treatment Outcome with Applications to Depression Studies," by Bei Jiang, Eva Petkova, Thaddeus Tarpey, and R. Todd Ogden.

The Biometric Practice section features articles on "An adaptive trial design to optimize dose-schedule regimes with delayed outcomes," by Ruitao Lin, Peter F. Thall, and Ying Yuan; "A general framework for modelling population abundance data," by P. Besbeas and B. J. T. Morgan; "Testing the heritability and parent-of-origin hypotheses for ages at onset of psoriatic arthritis under biased sampling," by Lajmi Lakkhal-Chaieb, Richard J. Cook, and Yujie Zhong; "Bayesian Data Integration and Variable Selection for Pan-Cancer Survival Prediction using Protein Expression Data," by Arnab Kumar Maity, Anirban Bhattacharya, Bani K. Mallick, and Veerabhadran Baladandayuthapani; and "Biclustering Via Sparse Clustering," by Erika S. Helgeson, Qian Liu, Guanhua Chen, Michael R. Kosorok, and Eric Bair.

Please note that lists of papers to appear can be found at the Biometrics website. Papers to appear in future issues may also be found under the "Early View" link at the Wiley website, which can be accessed by IBS members by visiting <http://www.biometricsociety.org/>, selecting "Biometrics" from the drop-down menu at the "Publications" link at the top of the page, and accessing the "Click here" link.

Transition Between Rest-of-World Co-editors

With the year 2019 drawing to a close, Malka Gorfine's (Eastern Mediterranean Region) Co-editor term is coming to an end. Malka has served as CE for the years 2017, 2018, and 2019. We wholeheartedly thank Malka for outstanding service to the journal

Tuesday August 20th. I was opportune to join another Lunchtime discussion (LTD) for LISA2020 network. The network is situated in the Department of Applied Mathematics and Statistics, Colorado Boulder in the United States of America (USA), with the vision to build 20 LISA laboratories worldwide by 2020. This is simply referred to as the network of LISA2020. My poster presentation CPS 657 titled Right Censored Observations in a Parametric Mixture Cure Fraction Models: Application to Ovarian Cancer was presented on Thursday August 22. I participated in all the social event of 2019 ISIWSC such Welcome Reception, ISI member Reception, Malaysia by Night and Gala Dinner.

I looked forward to IBC travel grant award as I will be willing to participate in IBC2020 at Seoul.

Atanu Bhattacharjee, India - 2019 IBS Travel Award Winner

7th Channel Network Conference, London

My name is Atanu Bhattacharjee, I am from Centre for Cancer Epidemiology, Tata Memorial Centre, Navi Mumbai and I was one of the IBS 2019 Travel Award winners, which allowed me to attend the 7th Channel Network Conference, London on July 2019. As a young scientist and assistant professor Biostatistics, it helped me a lot to enhance my Biostatistics skill. It supports me to expand my technical skills in the Biostatistics and application. Besides, it allowed me to share knowledge and interact with wonderful people in the United Kingdom. I am grateful to IBS for funding support. It means a lot to me. This award boosts my confidence to progress and dedicates more to Biostatistics. It will also help to create and maintain networking with people in the United Kingdom.

I got the opportunity to present my work orally on the first day, first session, as the first presenter, and at the huge conference hall. It was the Rothamsted Research Centre. The place where Prof. R.A. Fisher joined in September 1919 and create the theory of experimental design. An auspicious place for any statistician. It was a Bonanza for me. I will never forget that feeling in my entire life. I completed my education with B.Sc, M.Sc, and Ph.D. from India. I never got the opportunity to study and work abroad. I love my country and want to support my region with Biostatistics. Perhaps, currently, scope to learn and expand this subject is limited in India. In this context, the award support from IBS makes real sense to me. My native language is not English. A similar challenge is that I am not from eminent research scholar group those are having a track record of publication in Biometric and JABES. In this situation getting the publication in those prestigious journals is a lifetime challenge for me. However, the request to write for Biometric Bulletin is a wonderful opportunity for me. I do not want to miss it. I could fulfill one of my dreams.

I must thank the IBS regional organizing committee. I hope that this type of support will be continued for financially backward people, those cannot afford to do it. I also hope to attend IBS conference soon and making network around the globe. I want to repay the support given by IBS by involving in any activity for IBS Indian or other region. I will be lucky if it happens.

and the Society. On January 1, 2020, Malka will pass the baton to Alan Welsh (Australasian Region). His Rest-of-World Co-editor term runs through the end of 2022. The continuing Co-editors are Debashis Ghosh (ENAR, for North America, until the end of 2020) and Mark Brewer (British and Irish Region, for Europe, until the end of 2021).

Data Sharing and Data Accessibility

Biometrics recognizes the many benefits of archiving research data. Biometrics will soon expect authors to archive all the data from which the published results are derived in a public repository. The repository that authors choose should offer guaranteed preservation (see the registry of research data repositories at <http://www.re3data.org/>) and should help make it findable, accessible, interoperable, and reusable, according to FAIR Data Principles.

For more information, consult <https://www.force11.org/group/fairgroup/fairprinciples>.

In this regard, all accepted manuscripts are required to publish a data availability statement to confirm the presence or absence of shared data. If authors have shared data, this statement will describe how the data can be accessed, and include a persistent identifier (e.g., a DOI for the data, or an accession number) from the repository where the data are shared. Authors will be required to confirm adherence to the policy. If one does not intend to share the data, or cannot share the data described in a given manuscript, for example for legal or ethical reasons, or when no data are available, then an appropriate data availability statement will be provided to this effect. A so-called data availability statement will be placed in the heading of every manuscript.

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Journal of Agricultural Biological, and Environmental Statistics (JABES)

As usual, the December issue of JABES features papers covering a wide range of methodological areas including spatial extremes and hidden Markov models, and exciting application areas including glaciology and field trials; the full list of articles is provided below. We also are pleased to announce a book reviews editor, Eleni Matechou of the University of Kent. Welcome aboard, Eleni!

The December issue is comprised of the following papers: "Exploration and Inference in Spatial Extremes Using Empirical Basis Functions" by Samuel A. Morris, Brian J. Reich and Emeric Thibaud; "Estimation of Factor Analytic Mixed Models for the Analysis of Multi-treatment Multi-environment Trial Data" by Alison B. Smith, Lauren M. Borg, Beverley J. Gogel and Brian R. Cullis; "A Dynamic Individual-Based Model for High-Resolution Ant Interactions" by Nathan B. Wikle, Ephraim M. Hanks and David P. Hughes; "Comparing Coefficients Across Subpopulations in Gaussian Mixture Regression Models" by Shin-Fu Tsai; "Spatiotemporal Lagged Models for Variable Rate Irrigation in Agriculture" by Sierra Pugh, Matthew J. Heaton, Jeff Svedin and Neil Hansen; "The Conditionally Autoregressive Hidden Markov Model (CarHMM): Inferring Behavioural States from Animal Tracking Data Exhibiting Conditional Autocorrelation" by Ethan Lawler, Kim Whoriskey, William H. Aeberhard, Chris Field and Joanna Mills Flemming; "A Hierarchical Spatiotemporal Statistical Model Motivated by Glaciology" by Giri Gopalan, Birgir Hrafnkelsson, Christopher

K. Wikle, Håvard Rue, Guðfinna Aðalgeirsdóttir, Alexander H. Jarosch and Finnur Pálsson; "Post-stratified Probability-Proportional-to-Size Sampling from Stratified Populations" by Omer Ozturk and "A Mixture Model Approach for Compositional Data: Inferring Land-Use Influence on Point-Referenced Water Quality Measurements" by Adrien Ickowicz, Jessica Ford and Keith Hayes.

If you have a suggestion for a special issue, we would be pleased to hear from you. We are also keen to publish papers that summarize the state of methodological development in subject areas for which technological advances are generating a demand for new statistical approaches. If such papers also speculate on likely future developments, so much the better. If you feel that you could offer such a paper, or can suggest a topic together with possible authors, please let me know.

For more information on upcoming issues, the editorial board, and the aim and scope of the journal, please visit our website <http://link.springer.com/journal/13253>. We also accept submissions of books to review in the upcoming issues of JABES; to submit a book for review, please see the above website (click on "Editorial Board") or contact Eleni Matechou (e.matechou@kent.ac.uk).

Please follow us on Twitter: @JabesEditor.

Brian Reich
Editor in Chief

Software Corner

Shiny: An R package for building interactive web applications

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Shiny is a framework for building interactive web apps. Powered by the R Statistical Computing Software, web-accessible applications may be easily created to explore and analyse datasets, generate reports, and much more; all without the need to know HTML (Hypertext Markup Language, used to add text and images to web pages), CSS (Cascading Style Sheets, used to control a web site's formatting and layout), or JavaScript (used to add interactivity and functionality to a web site) (Chang et al., 2018). Arguably, Shiny may be thought of as a suite of "wrapper" functions for these web development languages.

The power of Shiny lies in the reactive programming paradigm on which it is based. The easiest way to understand this paradigm is to contrast it with the usual imperative programming paradigm with which R aficionados are familiar. So, an R programmer writes a sequence of commands which are executed in turn, starting at the first line of code and explicitly stepping through each subsequent line, with the goal of accomplishing a specific task. In contrast, a reactive function actively polls for input, 'automatically' responding and performing (or re-performing) a task every time a new input event occurs.

An end-user interacts with a Shiny web application (app) via a user interface (UI). Widgets, pre-built graphical components such as text boxes, radio buttons and drop down menus, are used for input control. Using these widgets enables R programmers to write powerful apps which have the appearance of responding to a user's inputs in real-time. In reality, the reactive Shiny app is polling the UI at intervals of such short duration that they are near-instantaneous to our human perception.

Shiny enables R programmers to build user-friendly, accessible applications which interact with R while sitting in a web browser. Its familiar R syntax style makes coding Shiny apps relatively straightforward and quick.

Shiny apps provide intuitive interfaces to statistical tools. Well-thought out Shiny applications can provide intuitive UIs to bridge the knowledge-skill set gap between sophisticated statistical methodologies developed by researchers and those who may benefit from their work. This accessibility has the potential to increase engagement with – and uptake of – powerful methodologies, enhance interpretation and dissemination of results, facilitate collaborations, and drive innovation. As already mentioned, for R programmers, using Shiny expedites the UI coding process with a straightforward and familiar syntax. Shiny also enables universal access by being self-contained on the web and freely available to anyone.

Shiny resources are plentiful on the web. RStudio provides a seven-lesson set of [written tutorials](#) for new users to obtain hands-on experience building Shiny apps from the ground up, and covers the initial app development, customising reactivity, fine-tuning appearance and layout, and finished app deployment. There are also [video tutorials](#) for those keen to develop more advanced skills. Of course, as has been customary with R and RStudio, a two-page Interactive Web Apps with Shiny [PDF Cheat Sheet](#) is also available.

The [Shiny Widgets Gallery](#) app is an excellent resource for working with widgets. It showcases a visual display of the set of widgets that are available. The app's widgets respond to interactions with them, showing how their coding values change in response to the end-user's selections. Very usefully, a simple click on a widget's "See code" button displays the **Shiny** code that was used to generate it.

If you are after some ideas on what you can do with Shiny, there is no shortage of examples on the internet. RStudio has an app [Gallery](#), demonstrating simple UIs through to some very fancy fully interactive visualizations, using JavaScript libraries. For example the [Google Charts Demo](#) app (Figure 1) enables a user to interact with a scatter plot of Life Expectancy, in years, against Health Expenditure, per capita (US\$), by content. The user can select the year for which they want to view the scatter plot of the data or, they can click on the play button to watch an animation of how the values of the variables change across the years 1995 to 2011.

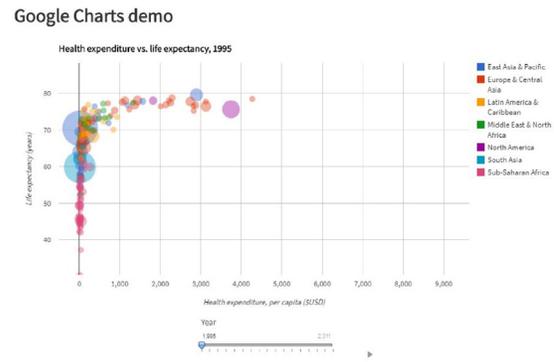


Figure 1: User interface of the Google Charts demo Shiny app.

Shiny apps can be effortlessly deployed. Simply sign up for an account with [shinyapps.io by RStudio](#). Each Shiny app runs on the web in its own protected environment, with access always SSL encrypted. If you elect to sign up for a free account, you may deploy up to 5 applications with their active capped at 25 hours per month. If the cap is reached within a month then your apps will be unavailable until your next month's 25 hour cycle commences.

Shiny's strengths are manifold. Innovative data collection technologies, such as drones, data loggers and sensors, seamlessly acquire and process enormous amounts of information. These data acquisition methods are increasingly affordable and sophisticated as technology evolves, but this evolution has highlighted a knowledge-skill set gap between the researchers who develop sometimes quite complex statistical methodologies and those who may benefit from using their work. A not too uncommon consequence is that the latter opt instead for easy-to-use commercial software, and use tools which are not entirely fit for the specific purpose.

Shiny provides a solution to this knowledge-gap problem, which often deters uptake by those who might benefit most. Researchers who can program in R can create Shiny apps which are universally accessible because they are self-contained on the web and freely available to anyone. Further, the familiar R syntax makes it relatively straightforward and quick for UIs to be coded by R programmers, meaning that for 'niche' methodologies there is often a net positive cost-benefit for developing a Shiny app.

A well-thought out Shiny app with an intuitive UI can enhance interpretation and dissemination of data analysis results. This is particularly useful for time-sensitive projects where a lag between data collection and subsequent analysis may be costly. Expediting such analyses performed essentially in real-time may quickly identifies errors or process problems and enable timely corrections, potentially avoiding downstream complications and costs.

While there are several examples of Shiny fast tracking time-critical analyses, one is most notable. Depalma (2013) developed a new methodology to conduct antimicrobial susceptibility tests. This was wrapped in a Shiny app which so greatly simplified the use of the methodology that end-users could immediately access and apply the methodology with minimal training. This example highlights two very important points. Firstly, an intuitive workflow was achieved by bridging the communication between the researcher that developed the app and its end-user. This opened lines of communication between two groups that previously communicated only through a third party. Secondly, the often requisite training

and upskilling needed for engagement with the new methodology was almost entirely circumvented.

Another benefit of Shiny wrapped code is the easy implementation of methodological comparisons on publicly available data sets. This is a powerful tool in the advancement of reproducible research. A great example was given by Lazerte et al. (2017), who created the Shiny app FeedR in order to document and visualise Radio Frequency Identification (RFID) data from ecological studies. The huge amount of data from RFID loggers quickly becomes overwhelming, so the authors wanted to create a framework such that the app could become a meeting point for science, education and community awareness. Inspiration of citizen engagement whilst enabling robust scientific analysis was achievable due to Shiny and the app can still be found at <http://animalnexus.ca/>.

Data simulations and visualisations have been shown to be powerful tools for enhancing a student's learning experience. Making these experiences interactive through a Shiny UI can 'bring to life' a methodology's behaviour under different conditions. For instance, Shiny apps have been created to aid in conceptualising the power of hypothesis tests and confidence intervals. Courtney and Chang (2018) created a Shiny app to interface with their [normalr](#) R package, which normalises large datasets and allows students to explore the results of differing transformations. Another example is the [ranacapa](#) app from the field of bioinformatics, enabled students to explore biodiversity in their samples in mere minutes, with no prior bioinformatics experience (Kandlikar et al., 2018).

The maintenance and updating of Shiny apps is relatively effortless. The app's Shiny code is centralised on a host server and accessed remotely. There is no need to worry about your Shiny app ceasing to work as intended if the R packages your app depends on 'break' or become deprecated, as the packages required to run your app are installed locally on the hosting server. However, should you want to update your app to make use of an updated package version or a computationally more efficient version of a function, this change would be made to the Shiny app code on the hosting server. These changes would be seamless for your app's users.

Shiny has a critical weakness. There is no other way of saying this but, the debugging facilities are depauperate. There is a [little trick](#), which all new Shiny app developers should learn, which enables stepping into the app and observing any changing values of reaction variables.

Shiny is relatively easy to learn. We are delivering a one-day workshop on Shiny at the upcoming IBS-AR conference (2 December, 2019). We anticipate that by the end of our workshop, which assumes no prior knowledge of Shiny (but a good working knowledge of R), our participants will achieve level of Shiny coding confidence such that they will feel they can independently start writing their own Shiny app. Please feel free to email us for a copy of our notes.

Acknowledgements. We would like to thank the Grains Research Development Corporation of Australia and the Statistics for the Australian Grains Industry – Southern Regional node, for their financial support. We also thank our colleagues at the Biometry Hub for their input and advice in the writing of this article.

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Region News

Australasian Region (AR)

<http://www.biometricsociety.org.au/about.html>

Member news

Congratulations to the following Australasian Region members:

Rachel Fewster on her promotion to Professor in the Department of Statistics at the University of Auckland, Murray Aitkin on being awarded the first honorary membership to the Statistical Modelling Society, Arthur Gilmour for whom this year marks his 50 year IBS-AR membership milestone, and Alice Richardson on becoming the Director of the Statistical Consulting Unit at the Australian National University (ANU).



Rachel Fewster pictured giving her keynote address at our 2017 regional biennial conference, Biometrics by the Border.

Statistical Modelling Murray

Murray Aitkin



- A leading presence at many IWSMs — presenting talks, asking questions, stimulating discussions and collaborations — always interested
- A major contributor to statistics
- A man of principles and passions

Hinde Murray Aitkin & IWSM 17 / 19

Slide from John Hinde's introduction to Murray Aitkin's featured talk at International Workshop on Statistical Modelling, where Murray was awarded honorary membership to the Statistical Modelling Society.



Jane Speijers, Helen Nicol and Arthur Gilmour studying a map of Mandurah at the 2013 IBS-AR conference, Biometrics by the Canals. This year, Arthur celebrates 50 years of IBS-AR membership.



IBS-AR Member profile: Associate Professor Alice Richardson

IBS-AR member, Associate Professor Alice Richardson.

Q: When and why did you join IBS-AR?

A: I joined in June 1994 as a PhD student ahead of the IBS conference in my home country of New Zealand. The lure of the reduced fees for Society members was too strong to resist! I

remember staying in student accommodation, and I remember the excitement of preparing my first international conference presentation. When I think back on it now I know I tried not to include my entire PhD project in one talk, but I also know there were way too many equations in those overhead projector slides! I have continued to maintain my IBS membership because of the regional structure of the Society – there are tangible benefits for Society members in every country, unlike the national societies whose activities are so closely focused on their home country.

Q: What biometrics related work do you do?

A: For the last four years my role has been as a biostatistician in the Research School of Population Health at the Australian National University (ANU). This was a highly collaborative role where I worked on a huge range of population-health related projects. Some of these were more like clinical trials, such as a study of water, sanitation and hygiene interventions in households and schools in villages across Timor L'Este. Others were more classical epidemiological studies such as factors influencing the uptake of flu vaccinations across Australia.

In October 2019 I took up a new role, that of Director of the Statistical Consulting Unit at ANU. The Unit collaborates on the statistical aspects of research right across the ANU, from linguistics and psychology to political science and biology. A significant proportion of the unit's work is based in broadly biometrical research, and I'm looking forward to using my skills to get involved in regular consultations. I'll also get into setting directions for the unit over the next five years, and I'm very excited about the prospect of new priorities around communities of practice, and training in statistical thinking.

Q: What other research interests do you have?

A: My research career began with multilevel models, with my PhD on robust estimation in mixed linear models supervised by our current IBS-AR Region president, Alan Welsh. My interest in these models has never waned.

I'm also passionate about statistics education and ensuring that the next generation of researchers is well prepared for the deluge of quantitative data that is available for them to interrogate. I was a lecturer in Statistics at the University of Canberra for two decades,

which was a teaching-intensive position with many hundreds of undergraduates exposed to my introductory Statistics courses over that time. I was able to implement a number of exciting innovations in the classroom to help break down the barriers of statistical language and explain subtle statistical concepts to students who weren't always that keen to be in my Statistics class!

I'm also a very strong supporter of girls and women who select Science, Technology, Engineering and Mathematics (STEM) as their career path. I'm on the steering committee of R-Ladies in Canberra, which launched in February 2019. We've had a busy launch year including presentations from Dr Alison Hill from RStudio, and Professor Dianne Cook from Monash University. Dianne has also addressed IBS-AR meetings in the past, so she's clearly a statistician whose research interests are relevant to biometricians.

Vanessa Cave

Eastern North American Region (ENAR)

<https://www.enar.org/>

ENAR Officers

ENAR is pleased to announce the election of the President-Elect Brent Coull who will join the incoming President Mike Daniels, Past President Sarah Ratcliffe, Secretary Brisa Sánchez, and Treasurer René Moore. ENAR also congratulates newly elected Regional Committee (RECOM) members Emma K.T. Benn, Paul Rathouz, and Pamela Shaw. The ENAR membership expresses heartfelt appreciation to all candidates. We are fortunate to have many outstanding members willing to commit time and energy to serve the profession and organization.

2020 ENAR Spring Meeting, Nashville, TN, USA

The 2020 Spring Meeting of the IBS Eastern North American Region, in conjunction with the Institute of Mathematical Statistics (IMS) and sections of the American Statistical Association (ASA), will be held 22-25 March at the JW Marriott Nashville. Located in the heart of downtown Nashville, this luxury hotel is close to many of the city's attractions, including the Music City Center, Frist Fine Art Museum, Nissan Stadium, Country Music Hall of Fame, and the iconic Honky Tonk Highway on Lower Broadway. It is also within walking distance of chef-driven restaurants and classic dining spots offering up Nashville Hot Chicken, barbecue, Meat & Three fare, and more.

The scientific program will once again be phenomenal with a wide variety of topics, including environmental statistics, network meta-analysis, microbiome studies, new weighting methods and joint modeling in causal inference, interval-censored survival data, analysis of electronic health records and large-scale biobank data, machine learning, artificial intelligence, and career development. The Presidential Invited Speaker will be Sharon-Lise Normand, S. James Adelstein Professor of Health Care Policy (Biostatistics), Department of Health Care Policy at Harvard Medical School and Department of Biostatistics at Harvard T.H. Chan School of Public Health. In her talk, titled "Medical Product, Healthcare Delivery, and Road Safety Policies: Seemingly Unrelated Regulatory Questions," Dr. Normand will discuss her fascinating work on using large, complex observational data to make policy decisions

by overcoming statistical issues including clustered data, multiple treatments, multiple outcomes, high-dimensional data, and lack of randomization.

Dr. Normand is well known for her methodological contributions in Bayesian and causal inference approaches for health services and regulatory policy research. She is an elected fellow of the American Statistical Association, a fellow of the American Association for the Advancement of Science, fellow of the American College of Cardiology, and Associate Member of the Society of Thoracic Surgeons. Dr. Normand is a recipient of numerous awards, including the ASA's Health Policy Statistics Section Long Term Excellence Award, the American Heart Association's Outstanding Lifetime Achievement Award, the Boston University L. Adrienne Cupples Award for Excellence in Teaching, Research, and Service in Biostatistics, and the ASA Boston Chapter's Mosteller Statistician of the Year award.

A complete listing of the many invited sessions to be presented at the meeting can be found at www.enar.org. In addition, the program will feature both full and half-day short courses: "Implementing Bayesian Adaptive Designs: From Theory to Practice" (Ying Yuan and J. Jack Lee); "Practical solutions for working with Electronic Health Records data" (Rebecca Hubbard); "Design and Analysis of Sequential, Multiple Assignment, Randomized Trials for small and large samples" (Kelley Kidwell, Thomas Braun, and Roy Tamura); "Programming with hierarchical statistical models: Using the BUGS-compatible NIMBLE system for MCMC and more" (Christopher Paciorek); "Multivariate meta-analysis methods" (Haitao Chu and Yong Chen); "Statistical Network Analysis with Applications to Biology" (Ali Shojaie and George Michailidis); and "Trial Design and Analysis Using Multisource Exchangeability Models" (Joseph Koopmeiners, Brian Hobbs, and Alex Kaizer).

Several tutorials will once again be offered, running concurrently with the scientific sessions thanks to the work of the Education Advisory Committee (Lynn Eberly, Jason Roy, Veera Baladandayuthapani, and Haoda Fu). Topics include geometric functional data, integration of genetics and imaging data, difference-in-difference studies, and the use of R for disease risk modeling and visualization, causal inference, and package development. Additionally, roundtables will allow an opportunity to interact with experts and peers in a less formal setting. The roundtables also offer a variety of topics, both professional development and statistical, including navigating different types of statistical positions, mentorship, publishing and reviewing papers, and data science programs. Round tables are a great opportunity to interact with some of the outstanding ENAR leaders!

ENAR 2020 will feature one pre-conference workshop, Fostering Diversity in Biostatistics, which will be chaired by Felicia Simpson and Loni Philip Tabb and take place on Sunday 22 March. Sunday evening will feature the new member reception, opening mixer and poster session, during which the ENAR Regional Advisory Board poster competition will be held. The Council for Emerging and New Statisticians will hold a student mixer on Monday evening, and the Career Placement Center will take place throughout the meeting to offer assistance to those seeking employment.

Special thanks to those who are working hard to help plan the ENAR Spring Meeting. Program Chair Juned Siddique (siddique@northwestern.edu) and Associate Program Chair Chenguang Wang (cwang68@jhmi.edu) led a tremendous effort in crafting the scientific program, and the Local Arrangements Chair, Cindy Chen, has identified interesting adventures in Nashville to keep you busy during your meeting downtime. ENAR is also grateful to the IMS Program Chair Sunduz Keles (University of Wisconsin, Madison) and the Digital Program Coordinator David Aaby (Northwestern University) for their efforts.

2020 JSM, Philadelphia, PA, USA

The 2020 Joint Statistical Meetings will be held in Philadelphia, Pennsylvania, USA from 1-6 August 2020. ENAR is fortunate to have Jeremy Gaskins of the University of Louisville (jeremy.gaskins@louisville.edu) be our representative to the Program Committee.

2021 ENAR Spring Meeting, Baltimore, MD, USA

The 2021 ENAR Spring Meeting will be held in Baltimore, Maryland, USA from 14 to 17 March, 2021 at the Baltimore Marriott Waterfront.

ENAR Webinar Series

Upcoming ENAR webinars include “Entity Resolution with Societal Impact in Machine Learning,” presented by Rebecca Steorts on 7 February 2020 and “The Role of Statistics in Transforming EHR Data into Knowledge,” presented by Rebecca Hubbard on 15 May 2020. Registration and details for ENAR webinars can be found at: <https://www.enar.org/education/>. Please contact Sameera Wijayawardana (wijayawardana_sameera_r@lilly.com) or Lili Zhao (zhaolili@umich.edu) if you have suggestions for webinar topics.

German Region (DR)

<http://www.biometrische-gesellschaft.de/>

Advanced Methods of Sample Size Calculation and Re-Calculation

The IMBI Heidelberg organized and IBS-DR and GMDS sponsored summer schools have become a kind of tradition and assumed cult status with some of the participants. This year, due to heavy demand, there were two installments with cordial reunions and sincere questions, if the Pfalzakademie was the living room of the team of instructors. The charm of the location rests with its seclusion and monasterial silence that is beneficial to intensive teaching and learning. A varied main program and social events preclude tedium. Even seasoned hands heard some news. After the introduction to principles by Meinhard Kieser, Samuel Kilian presented sample size calculations for the Fisher-Borchloo test that should be applied more often, followed by methods for ordinal (Rouven Behnisch) and for time-to-event data (Katrin Jensen and Johannes Krisam), for multiple testing (Laura Benner), for cluster-randomized trials and for Bayesian analysis (Johannes Kriesam) and for blinded and for unblinded re-calculation (Meinhard Kieser and Maximilian Pilz). Birgit Schleweis and Andrea Wendel managed a perfect organisation complete with barbecue, hiking, and guided tour of Spangenberg castle. Participant reactions were enthusiastic with vows to return for more. The next IMBI

summer school on “Simulations studies in biometric research” will take place in the same location July 13-15, 2020.



Meinhard Kieser, IMBI Heidelberg

Upcoming Events

February 4-5, 2020, Workshop on Computational Models in Biology and Medicine 2020 of working groups “Statistical Methods in Bioinformatics” and “Mathematical Models in Medicine and Biology” in Bonn <http://www.biometrische-gesellschaft.de/arbeitsgruppen/statistische-methoden-i-d-bioinformatik/workshop2020.html>

March 12-13, 2020, Erlangen, Uncertainty of Measurement, sampling statistics, theory of probability, and metrology, workshop of working groups „Ecology and Environment“, „Bayes Methods“, „Spatial Statistics“ (IBS-DR) and „Biometry“ (German Association of Forest Research Stations, DVFFA) http://www.biometrische-gesellschaft.de/fileadmin/AG_Daten/OekologieUmwelt/PDFs/workshop_biometry_erlangen_20200312_call.pdf

March 16, 2020, Heidelberg, Workshop “Analysis of Adverse Events in The Context of Estimands” of working group Pharmaceutical Research, together with GMDS working group Therapeutic Research <http://www.biometrie.uni-heidelberg.de/workshop>

May 28-29, 2020, Göttingen, Workshop on Adaptive Designs and Multiple Testing Procedures of working group Adaptive Designs and Multiple Testing Procedures <http://www.biometrische-gesellschaft.de/arbeitsgruppen/adaptive-designs-multiple-testing-procedures.html>

July 13-15, 2020, Lambrecht/Pfalz, Summer school „Simulation studies in biometric research“

September 7-11, 2020, GMDS & CEN-IBS 2020 in Berlin, meeting of the Central European Network of IBS jointly with German Association for Medical Informatics, Biometry and Epidemiology <https://www.gmds-cen-2020.de/>

Japanese Region (JR)

<http://www.biometrics.gr.jp/>

The 2019 Japanese Joint Statistical Meeting

The Japanese Joint Statistical Meeting was held on 8-12 September at Shiga University, Shiga, Japan. It was hosted by Japanese Federation of Statistical Science Association, which consists of six sponsoring organizations, including the Biometric Society of Japan (BSJ). As an invited session, the BSJ organized the Biometric Symposium entitled "Clinical trial designs and statistical analysis methods utilizing disease registry data." In recent years, on the basis of the Clinical Innovation Network concept proposed by the Ministry of Health, Labor and Welfare, studies have been started on the concept of reliability assurance of disease registry data, study design, and statistical analysis methods mainly by the National Medical Research Centers. Prof. Hirakawa (The University of Tokyo) and Dr. Ando (Pharmaceuticals and Medical Devices Agency) organized and chaired the session jointly. The society invited four speakers. Dr. Shibata (National Cancer Center Japan) presented recent trends in disease registries and considerations to reliability assurance of data, Prof. Hayashi (Gunma University) presented clinical trial design using disease registries, Dr. Nomura (National Cancer Center Japan) presented statistical analysis using disease registries, and Dr. Tachimori (National Center of Neurology and Psychiatry) presented actual situations and statistical issues of using registry data for intractable neurological and muscular diseases.

The society organized another invited session of the winners of the Young Biostatisticians Award to present their own research. This award is annually conferred by the BSJ for researchers, who are less than 40 years old and publishes their research of high standard in recent issues of Biometrics, JABES, or Japanese Journal of Biometrics (JBS, the official journal of the BSJ). Dr. Igeta (Hyogo College of Medicine) presented his recent work on power and sample size calculation incorporating misspecifications of the variance function in comparative clinical trials with over-dispersed count data published in Biometrics, and Dr. Okui (Kyushu University Hospital) presents his recent work on a new association analysis method for gut microbial compositional data using ensemble learning published in JBS.

The Biometric Seminar

The Biometric Seminar Adaptive Design International Symposium is being organized by the BSJ jointly with the Institute of Statistical Mathematics and Japan Pharmaceutical Manufacturers Association (JPMA) and will be held on 14-15 November 2019 at Vision Center Tokyo Yaesu Minami-guchi, Tokyo, Japan. The theme to be discussed is entitled "Adaptive design and its application." Lectures cover a wide range of topics including an introduction to adaptive designs, methods used mainly in the oncology area, group sequential design, sample size re-estimation, regulatory documents, and actual examples. An overview of the Food and Drug Administration's (FDA's) draft guidance will be given by Dr. Scott (FDA) and industry perspective and experience will be given by Dr. Dragalin (Johnson & Johnson).

Ikuko Funatogawa

Meetings:

14-15 November 2019

The Biometric Seminar

Vision Center Tokyo Yaesu Minami-guchi, Tokyo, Japan

Spanish Region (REsp)

<http://www.biometricsociety.net/>

The 4th Student Conference of the Spanish Region of the International Biometric Society (REsp) was successfully held in Albacete on September 5 and 6, 2019. The Albacete campus of the University of Castilla-La Mancha (UCLM) hosted this event with more than 50 participants.

The scientific program of the conference included a total of 8 oral sessions (two more than the previous edition of this conference celebrated in Bilbao in January 2018) and one poster session. The talks covered a wide range of topics such as medical studies, ecology, agriculture, survival analysis, optimum experimental design, multivariate analysis, prediction models, and spatial statistics.

In addition, the program also included a course titled "Introduction to spatial mapping with R", given by Virgilio Gómez Rubio from the University of Castilla-La Mancha, and a round table on "The Role of Women in Statistics" where Marta Bofill Roig (Universitat Politècnica de Catalunya), Irantzu Barrio (University of Basque Country), Anabel Forte (Universitat de Valencia) and María Durbán (Universidad Carlos III de Madrid) discussed different questions regarding this topic.

The Local Committee proposed an activity where the participants took part in an orientation game that would take them through the most emblematic places of the city of Albacete, such as the Passage of Lodares, the Altozano square, or the Fair which is opened only 10 days every year. Moreover, the program includes a social dinner in a glamorous restaurant called La Posada Real.

The Organizing Committee, exclusively composed of students of the Spanish Region, is very grateful to the REsp, University of Castilla-La Mancha (UCLM), Department of Mathematics of the UCLM, Higher Technical School of Industrial Engineers of the UCLM, Higher School of Computer Engineering of the UCLM, regional and national governments, Biostatnet, Servei d'Estadística Aplicada (Universitat Autònoma de Barcelona), and Syntax for Science for the support received. Moreover, the Organizing Committee wants to congratulate all participants on this conference, it was a great success.

For more information, visit <http://www.biometricsociety.net/iv-jseb/> and the hashtag #IVJSEB on Twitter.

Western North American Region (WNAR)

<http://wnar.org/>

2020 WNAR/IMS meeting

The 2020 WNAR/IMS meeting will be in Anchorage, Alaska from 14-17 June 2020.

Anchorage is Alaska's largest city, and is picturesquely located on the Cook Inlet. The Chugach mountains, multiple national parks, and 60 glaciers are all a short drive away. The WNAR conference is held in June, when the long summer days can be enjoyed. Jiaqi Huang (Alaska Department of Fish and Game) is the Local Organizer, Yingqi Zhao (Fred Hutchinson Cancer Research Center) is the Program Chair, and Harold Bae (Oregon State University) is the Student Competition Chair. Registration information and other details about the meeting will be posted to the WNAR site www.wnar.org as they become available.

2020 WNAR Student Paper Competition

WNAR sponsors students who enter the student paper competition. All WNAR-region entrants receive their registration fees and banquet dinner ticket for free. Monetary prizes will be awarded to the best papers in written and oral competitions. Information on the 2020 WNAR Student Paper Competition, registration information, and program details for the meeting will be posted as they become available: <http://www.wnar.org>. We look forward to seeing you there.

Megan Othus

Announcements & Advertisements

The enrollment to the 9th edition of the residential course STATISTICALPS (1-5 Marzo 2020) is open! The course will be held in Ponte di Legno (Brescia, Italy), hotel Mirella.

Title: "THE ANALYSIS OF LONGITUDINAL AND LIFE HISTORY DATA"

Instructors: Richard Cook, Professor of Statistics in the Department of Statistics and Actuarial Science at the University of Waterloo in Canada <http://www.math.uwaterloo.ca/~rjcook/>
Daniel Farewell, Reader in Statistics in the School of Medicine at Cardiff University, UK <https://www.cardiff.ac.uk/people/view/123049-farewell-daniel>

Reduced fee for IBS members and one scholarship available for PhD students.

General information, brochure, enrollment for available at this link <http://www.summerschoolbicocca.com/statisticapls2020.php>

For further information you can email to statisticalps@unimib.it

Facebook page

https://www.facebook.com/pg/Statisticalps-Course-on-Medical-Statistics-9th-edition-2243932959157446/posts/?ref=page_internal

Pranab K. Sen Distinguished Visiting Professorship

The Department of Biostatistics at the University of North Carolina at Chapel Hill (UNC-CH) is seeking to recruit an aspiring international scholar in statistical science for the Pranab K. Sen Distinguished Visiting Professorship in Biostatistics. The position is for the fall semester beginning August 2020 for a period up to five months, or for summer 2020 up to three months. Preference will be given to applicants from developing countries as defined by the Departments of Biostatistics and Statistics and Operations Research and in consort with the dean of the Gillings School of Global Public Health. Preference will also be given to applicants who provide a plan of proposed research. The visiting faculty, who will come from an area of statistical science, broadly defined, including bioinformatics, will come to UNC-CH to conduct research, possibly teach, and interact with faculty, students, and the university community. The major benefit will be an intensive interaction of the visitor's strong methodology background with applications to interdisciplinary research underway at UNC-CH. The visiting professorship, at the assistant, associate or full professor level, offers salary support commensurate with the rank.

Financial support for other expenses such as travel is negotiable. Ideally, the visiting scholar will return to his or her home country for at least one year upon completing the appointment to further expand the reach of interdisciplinary work begun in Chapel Hill. Applicants should hold a PhD in statistics or biostatistics or have commensurate education background.

To apply, upload your CV, cover letter, and research statement in the application at <http://unc.peopleadmin.com/postings/172246>. Candidates must also arrange for three letters of recommendation to arrive via email to Annette Raines (annette_raines@unc.edu) the deadline for application in March 1, 2020.

IBS Journal Club

The Journal Club is open to all IBS members free of charge. The primary purpose of the Journal Club, apart from presenting worthy papers in a more public setting, is to widen the scope for understanding these papers and to provide a new networking opportunity for IBS members through a regular internet forum. All sessions are recorded and are available on the IBS website here, <http://www.biometricsociety.org/education/video-sessions/>. To access the recording, you must login to your IBS account.

Upcoming Sessions:

13 February 2020 - 07:00 UTC (TIME CHANGE) | RSVP by email to ibs@biometricsociety.org

Paper: 'Information content of cluster-period cells in stepped wedge trials.' Speakers: Jessica Kasza with discussant, Richard Hooper

Past Sessions Recordings (2019)

14 February 2019 | [Recording](#)

'Flexible variable selection for recovering sparsity in non-additive

non-parametric models'
Speaker: Inyoung Kim

11 April 2019 | [Recording](#)
Sample Size Determination for GEE Analyses of Stepped Wedge
Cluster Randomized Trials'
Speaker: Frank Li
Discussant: Linda Harrison

13 June 2019 | [Recording](#)
'Informative Group Testing for Multiplex Assays'
Speaker: Christopher Bilder

15 August 2019 | [Recording](#)
'Bayesian Analysis of 210Pb Dating'
Speaker: Marco A. Aquino-Lopez

10 October 2019 | [Recording](#)
'A Case Study Competition Among Methods for Analyzing Large
Spatial Data'
Speaker: Matthew Heaton
Discussant: Veronica Berrocal

12 December 2019 | [Recording](#)
'Time-Dynamic Profiling with Application to Hospital Readmission
Among Patients on Dialysis'
Speakers: Damla Senturk
Discussant: Kevin Zhe

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4. Sign in - and once again click on the **follow** button
5. You're done! Of course, to receive notifications from us on your smartphone, you will need to download the Twitter app.

Already on Twitter? Search for our handle [@IBSstats](#).

IBS is on LinkedIn!

Join our group, and get connected to colleagues across the globe! Did you know that IBS has a LinkedIn Group for biometrics industry professionals? Network with your colleagues instantaneously! Post discussions to the group, and get comments/feedback from group members on their perspectives or experiences. A great benefit of this group is that it's a very easy and free way to communicate with your colleagues who live all over the world. Being connected to the IBS group will allow you to see other connection possibilities, as well and broaden your professional network. Join our group today by visiting www.linkedin.com and search under groups for the "International Biometric Society".

[View all IBS, IBS Regional and Non-IBS Events and Meetings](#)

Is something missing? Would you like to add your meeting or event to our calendar? If so, please send an email to IBS@biometricsociety.org with the following information,

1. Event Title
2. Event Description
3. Event Category
 - a. IBS Regional Event
 - b. IBS Event
 - c. Non-IBS Event
4. Event Link
5. Start/End Date