



ICSA Bulletin

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From the Editor

Ming Wang

Dear ICSA Members:

Happy New Year to all ICSA members! As the Bulletin Editor of the International Chinese Statistical Association, I am pleased to introduce the latest issue of the ICSA Bulletin, which is dedicated to the theme of “Reviewing the Past and Looking Forward to the Future”.

I would like to express my gratitude to our leadership team, board members, and community for their continuous support in our efforts to bring the ICSA Bulletin to its members. It was a great pleasure to work with the 2022 President Dr. Zhezhen Jin, the 2022 Executive Director Dr. Mengling Liu and her successor, Dr. Jun Zhao to ensure timely publication of our bulletin. I would also like to extend my appreciation to all of our contributors who shared their valuable insights and expertise in this issue, as well as to the ICSA executives and committee chairs who supported our bulletin work.

In this issue, we have included articles and perspectives from a diverse group of experts in the field of statistics, who have taken the time to reflect on the past and explore future trends. The articles cover a wide range of topics, from insights on the NIH Perspective on Data Sharing and Management to the integration of computer science in our statistical community. In the column “XL-Files,” Professor Xiao-Li Meng reviewed his XL-Files from I to XXXIII in celebration of a milestone. We look forward to reading more column articles in the new year! This is a reprint from a column article published in the IMS Bulletin (<https://imstat.org/2022/12/13/xl-files-xl-is-x-or-lx/>) with the permission of IMS. We are also honored to have an invited article from Dr. Haoda Fu, a Research Fellow and Enterprise Lead for Machine Learning, Artificial Intelligence, and Digital Connected Care from Eli Lilly and Company, who is also an ASA Fellow and an adjunct professor of biostatistics at the University of North Carolina Chapel Hill and Indiana University School of Medicine. In this article, Dr. Fu shared his experience in data science and discussed what statisticians and computer scientists can learn from each other to advance the field further. Interestingly, Dr. Fu interacted with the modern Artificial Intelligence (AI) technique, ChatGPT, to share his thoughts, which is worth checking out. We appreciate Dr. Fu’s effort and contributions to our ICSA Bulletin! We welcome any ICSA mem-

bers to provide their thoughts and suggestions in our Bulletin. Please feel free to contact me if you would like to contribute an article or any other form of message that would be beneficial for our members with different levels of interest and background.

In addition, we thank Prof. Meng, the founding editor-in-chief of the Harvard Data Sciences Review (HDSR) that is an open access resource for leading and advanced content in data science, for reprinting one HDSR article entitled “A Conversation With Dr. Lawrence Tabak and Dr. Lyric Jorgenson on the NIH Perspective on Data Sharing and Management.” This article features an online interview with Dr. Lawrence Tabak, Acting Director of the National Institutes of Health (NIH), and Dr. Lyric Jorgenson, Acting Associate Director for Science Policy and the Acting Director of the Office of Science Policy at the NIH, discussing the importance of the new data management and sharing policy to the NIH and updates on its activities and priorities since the April 2021 workshop on data management and sharing. We appreciate Prof. Meng’s significant support for our ICSA and the Bulletin!

This issue of the ICSA Bulletin is filled with important updates and announcements regarding the ICSA community. It includes messages from the 2023 ICSA President, Dr. Gang Li, as well as from the 2022 ICSA President, Dr. Zhezhen Jin. The official election results for the 2023 ICSA officers are also included, along with a call for nominations for the 2024 ICSA Officer positions and the 2023 ICSA Awards. The issue provides a report on the ICSA Springer Book Series in Statistics, as well as ICSA-sponsored and co-sponsored journals. The financial report for 2022 is included, along with information on upcoming ICSA-sponsored or co-sponsored meetings and conferences.

I hope that this issue will be of interest and value to all members, and I look forward to your feedback. I would like to express my gratitude to my assistants, Dr. Biyi Shen (Regeneron Pharmaceuticals) and Dr. Chixiang Chen (University of Maryland), for their hard work in formatting and assembling the files for this issue.

Lastly, I wish all of our members and their families happiness and health in the New Year of Rabbit. We will work together to make our ICSA community even stronger and more dynamic in the future. Thank you for your consistent support and commitment, and I look forward to your participation in future issues of the ICSA Bulletin!



*Ming Wang, Ph.D.
Editor-in-Chief, ICSA Bulletin
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sity*

From the 2023 President, ICSA

Gang Li



Dear ICSA Members, Sponsors, and Friends,

Happy 2023 and the Year of the Rabbit!

Over the past year, I have been proud to witness the tremendous successes and achievements made by ICSA's members and the organization

as a whole. It is also exciting to see that after two years of virtual meetings and operations, ICSA has finally returned to in-person activities in 2022. The 2022 ICSA Applied Statistics Symposium in Florida was refreshing and a huge success. The annual ICSA General Member Meeting and the ICSA JSM dinner banquet also returned in person at the 2022 JSM in Washington, D.C. and were attended enthusiastically by our members and friends. A big thank you to the current and past ICSA leaders, volunteers, members, and friends for your leadership, service, participation, and support. In particular, I would like to express my personal gratitude to our past ICSA Executive Director, Mengling Liu, for her extraordinary service to the ICSA community during the challenging pandemic years from 2020-2022.

With 2022 behind us, we are looking forward to a productive 2023. As the new president of ICSA, I would like to extend my welcome to Jun Zhao, the new ICSA Executive Director (2023-2025), and Xun Chen, the ICSA President-Elect (2023), to the ICSA Executive Committee, which also includes Zhezhen Jin (past President) and Rui Feng (Treasurer). I would also like to extend an invitation to the ICSA Board of Directors, committees, publication editors, volunteers, and members to work together to continue ICSA's success, make ICSA a more inclusive, welcoming, and rewarding organization, and create

meaningful and impactful experiences for the members of our ICSA community. There will be many upcoming ICSA conferences, activities, and events in 2023, including the general election for 2024 ICSA Officers, the 12th ICSA International Conference in Hong Kong (July 7-9, 2023), the ICSA 2023 Applied Statistics Symposium in Ann Arbor, Michigan (June 11 –14, 2023), and the ICSA 2023 China Conference in Chengdu, China (June 30 –July 3, 2023). It's worth noting that the ICSA conferences also issue calls for Junior Researcher Awards, which offer excellent opportunities for students and early-career junior researchers to gain recognition for their research and receive financial support. If you are attending JSM this year, please pay attention to announcements about the many ICSA activities at the 2023 JSM in Toronto, including ICSA-sponsored invited sessions, the ICSA general member meeting, and the ICSA JSM dinner banquet. Additionally, I would like to call for your support for ICSA-sponsored/co-sponsored publications such as *Statistical in Biosciences* and *Statistica Sinica* by submitting your excellent work to these journals. For recent updates on ICSA-related events and opportunities, please check out the ICSA official website and read the ICSA monthly newsletters.

In addition to continuing the ongoing ICSA initiatives and services, I and the ICSA leadership team are eager to hear ideas and suggestions from you on how to improve various aspects of ICSA, including but not limited to its visibility, publications, membership, meetings, finance, fellowship, support for junior statisticians (including students), diversity, communications, and collaborations with other statistical associations and professions. Please feel free to reach out to me (vli@ucla.edu), Jun Zhao (ICSA Executive Director, executive.director@icsa.org), or chairs of the ICSA committees (listed on the ICSA website) for any

ICSA-related questions and suggestions. Please be reminded that YOU matter, YOUR work matters, YOUR ideas matter, and YOUR participation matters.

Thank you so much! I am looking forward to meeting you at various ICSA events this year.

Gang Li, Ph.D.

2023 ICSA President,

Professor of Biostatistics and Computational Medicine,

University of California at Los Angeles.

From the 2022 President, ICSA

Zhezhen Jin



Dear ICSA Members,

At the end of 2022, I completed my one-year term as President of ICSA. I would like to thank the dedicated members of ICSA, particularly the board of directors, committee members, conference and meeting organizers, and executive committee members. Together, we accomplished many of our goals in 2022.

During the past year, we continued our collaboration with other societies and organizations including KISS, IISA, NISS and ASA. We also resumed normal activities with two successful ICSA meetings after more than two years of virtual gatherings: (1) the 2022 Applied Statistics Symposium, which was held in-person from June 19-22, 2022 at the University of Florida in Gainesville, FL; (2) the 2022 ICSA China conference, which was held in a hybrid format of in-person and virtual on July 1-4, 2022 at Xi'an University of Finance and Economics in Xi'an, China. Our chapters also had successful meetings: (1) the Canada Chapter held its 5th symposium from July 8-10, 2022 in Banff, Canada; (2) the Midwest Chapter held a joint meeting with NIC-ASA on October 5-6, 2022 at the Hilton hotel in Northbrook, IL; (3) the Taiwan Chapter had a joint conference with the Institute of Statistical Science, Academia Sinica (ISSAS) on December 15-16, 2022, with a theme in memory of Academician Yuan-Shih Chow, who passed away on March 3, 2022. At the 2022 JSM, ICSA organized three invited and three topic-contributed sessions, as well as 12 co-sponsored scientific sessions and a career development workshop with the theme "ASA Asian Forward" in collaboration with KISS, IISA, and ASA. Additionally, ICSA resumed the tradition of the ICSA General Member meeting and banquet gathering during the 2022 JSM. I would like to thank all of the organizing

committee chairs, members, and volunteers for their time and dedication in making these events successful.

ICSA journals and publications have continued to grow. Under the co-editorship of Dr. Joan Hu and Dr. Hongkai Ji, the journal "Statistics in Biosciences" plans to publish two special issues on emerging areas in statistical methods in biosciences, in addition to regular publications. The journal "Statistica Sinica" has also seen continued growth, under the co-editorship of Dr. Rong Chen of Rutgers University, Dr. Su-Yun Huang of Academia Sinica, and Dr. Xiaotong Shen of the University of Minnesota. As the co-editorship term ends in July 2023, the "Statistica Sinica" board was formed in the middle of 2022 to identify new co-editors. The board consisted of 13 members, according to the 6th MOU between ICSA and the ISS of Academia Sinica. The members were Drs. Chun-houh Chen, Ching-Shui Cheng, Hsin-Cheng Huang, Su-Yun Huang, Jing-Shiang Hwang, Frederick Kin Hing Phoa representing ISS of Academia Sinica and Drs. Zhezhen Jin, Gang Li, Jane-Ling Wang, Qiwei Yao, Zhiliang Ying, and Linda H. Zhao representing ICSA. With the board members' recommendation, a new team of three co-editors has been appointed for the period from August 1, 2023 to July 31, 2026. They are Dr. Yi-Hau Chen of Academia Sinica, Dr. John Stufken of George Mason University, and Dr. Huixia Judy Wang of George Washington University. I am confident that these three co-editors will successfully lead our flagship journal over the next three years. Additionally, under the ICSA book series editor, Dr. Din Chen, two new books were published in 2022. Our bulletin editor, Dr. Ming Wang, has worked hard to publish informative articles, and our newsletter editor, Ying Grace Li, has been drafting and sending out our monthly newsletter on time. I would like to express my gratitude to all members of the "Statistica Sinica" board and all editors for their dedicated service to ICSA.

I also owe my sincere gratitude to those members

I also owe my sincere gratitude to those members

who served on the board and various committees in 2022. In particular, I had the great pleasure of working with the 2022 ICSA executive committee, consisting of the 2021 ICSA President Colin Wu, the 2023 ICSA President Gang Li, the ICSA Executive Director Mengling Liu (serving from 2020-2022), and the ICSA Treasurer Rui Feng (serving from 2022-2024). I would like to thank them for their service and leadership. As Colin Wu and Mengling Liu complete their terms on the ICSA executive committee, we welcome two new members, the ICSA Executive Director (serving from 2023-2025) Dr. Jun Zhao and the 2024 ICSA President

Dr. Xun Chen. I am confident that, under the new leadership led by President Gang Li, ICSA will continue to advance.

I wish you all a healthy and prosperous year of the Rabbit!

*Zhezhen Jin, Ph.D.
2022 ICSA President
Professor
Department of Biostatistics,
Mailman School of Public Health,
Columbia University.*

From the 2023 President-Elect, ICSA

Xun Chen



Dear ICSA Members,

I am honored to have been elected as the 2023 ICSA President-Elect. It is a privilege to join the ICSA family, a remarkable team of devoted volunteers serving the community.

This year, I will work closely with the ICSA executives and board of directors to support ICSA 2023 President, Professor Gang Li, in leading the organization. Together, we will continue to fulfill ICSA’s educational and scientific objectives through renowned symposiums and publications, and ex-

plore new opportunities to expand ICSA’s influence through collaborations with other statistical associations worldwide. My goal is to collaborate with all of you to sustain and enhance the success of ICSA in the era of big data. We will promote innovative statistical methods and foster their application to real-world problems through this well-established platform.

If you have any suggestions on how we can better fulfill the missions of ICSA, please do not hesitate to email me at xun.chen@sanofi.com. Thank you.

*Xun Chen, Ph.D.
2023 President-elect,
Global Head of Biostatistics and Programing,
Sanofi*

From the Executive Director 2023-2025

Jun Zhao



Dear ICSA members,
Happy New Year! It is my pleasure to serve the association and all of its members over the next three years. I

would like to extend my congratulations and gratitude to the Executive Committee, the Board, the standing committees, and all ICSA members. Your participation, contributions, and dedicated service to ICSA make our organization stronger. Although people may still face hurdles and challenges caused by the pandemic, we be-

lieve that 2023 will be a better year.

Last year, I was excited to meet many colleagues at our annual ICSA Applied Statistics Symposium, which was held physically at the University of Florida, and at the ICSA booth and banquet at the Joint Statistical Meetings in Washington, DC.

I am deeply grateful for the opportunity to work with the Executive Committee prior to my service term from 2023 to 2025. This year, we have planned three in-person conferences: the 2023 ICSA Applied Statistics Symposium in Ann Arbor, Michigan; the ICSA China Conference in Chengdu, China; and the

ICSA International Conference in Hong Kong. We would like to invite all members to attend these conferences and hope to see you there. Thank you in advance for your continued support and commitment to ICSA. Wishing you a happy, healthy, and successful 2023!

Jun Zhao, Ph.D.
ICSA Executive Director (2023-2025) ,
Senior Director, Statistics,
Antengene Corp

ICSA 2023 Core Members

EXECUTIVES:

- President: Gang Li (vli@ucla.edu)
- Past-President: Zhezhen Jin (zj7@columbia.edu)
- President-Elect: Xun Chen (xun.chen@sanofi.com)
- Executive Director: Jun Zhao (2023-2025, executive.director@icsa.org)
- ICSA Treasurer: Rui Feng (2022-2024, treasurer@icsa.org)
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- Min Zhang (2023-2025, mzhangst@umich.edu)
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- Yichuan Zhao (2022-2024, ICSA China Conference 2023, yichuan@gsu.edu)

Awards Committee:

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 - Henry Horng-Shing Lu (2022-2023, hslu@stat.nycu.edu.tw)
 - Hongjian Zhu (2023-2025, Hongjian.zhu@abbvie.com)
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Special Lecture Committee:

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 - Aiyi Liu (2021-2023, liua@mail.nih.gov)
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 - Jianguo Sun (2022-2024, sunj@missouri.edu)
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 - Rong Chen (2021-2023, Co-Editors of Statistica Sinica, rongchen@stat.rutgers.edu)
 - Su-Yun Huang (2021-2023, Co-Editors of Statistica Sinica, syhuang@stat.sinica.edu.tw)
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 - Ming Wang (2021-2023, Editor for ICSA Bulletin, mwang@phs.psu.edu)
 - Jun Zhao (2023-2025, Executive Director of ICSA, executive.director@icsa.org)
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 - Yifei Sun (2021-2023, ys3072@cumc.columbia.edu)
 - Fei Huang (2022-2024, feihuang@unsw.edu.au)
 - Xun Chen (2022-2024, xun.chen@sanofi.com)
 - Wei Zhang (2022-2024, wei.zhang@boehringer-ingenelheim.com)
 - Anru Zhang (2022-2024, anru.zhang@duke.edu)

IT Committee:

- Chair: Chengsheng Jiang (2023, website@icsa.org)

Archive Committee':

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 - Rui Miao (2021-2023, ruimiao@gwu.edu)
 - Xin Tian (2022-2024, tianx@nhlbi.nih.gov)
 - Jun Yan (2022-2024, jun.yan@uconn.edu)

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 - Rochelle Fu (2022-2024, fur@ohsu.edu)
 - Yuan Jiang (2022-2024, yuan.jiang@stat.oregonstate.edu)
 - Hongliang Shi (2020-2022, hongliangshi15@gmail.com)

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- Members:
 - Shelly Hurwitz (2017-2023, hurwitz@hms.harvard.edu)
 - Laura J Meyerson (2020-2023, laurameyerson@msn.com)
 - Kelly Zou (2022-2024, Kelly.Zou@viatris.com)

ICSA Representative to JSM Program Committee:

- Jianguo (Tony) Sun (2023, sunj@missouri.edu)
- Yingwen Dong (2024, yingwen.dong@sanofi.com)

AD HOC COMMITTEES:

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- 2023 Applied Statistics Symposium: Gongjun Xu (gongjun@umich.edu), Jian Kang (jiankang@med.umich.edu)
- CHAPTERS
 - ICSA-Canada Chapter: Joan Hu (Chair, joan_hu@sfu.ca)
 - ICSA-Midwest Chapter: Xiaohong Huang (Chair, xiaohong.huang@abbvie.com)
 - ICSA Taiwan Chapter: Henry Horng-Shing Lu (Chair, hslu@stat.nycu.edu.tw)

Call for Nominations of Candidates for 2024 ICSA Officers

Due by April 1, 2023

The ICSA 2023 Nomination and Election Committee is seeking for nominations of candidates for ICSA 2024 officers: ICSA President-Elect 2024 and ICSA Board of Directors (2024-2026). The committee plans to identify two candidates for the ICSA President-Elect 2024 and twelve candidates for ICSA Board of Directors for general election. Candidates for all positions need to be active ICSA members in 2023 and have strong interests in serving ICSA. According to the ICSA Bylaws, President-Elect should be from academia, non-academia, or

no restriction, on a three-year rotational basis –one year from academia, another from non-academia, and the third year open. There is no category restriction for the candidates this year. We hope that the candidates for Board of Directors are balanced with respect to gender, region, and area of employment (academia, industry/business, or government). Please file your nomination through the Google form at <https://forms.gle/YQaVtvyobY31q1w47> by April 1, 2023. You may contact Professor Yichuan Zhao at yichuan@gsu.edu if you have any questions.

Call for Nominations for 2023 ICSA Awards

The ICSA Award Committee will review and evaluate nominations of each award.

Distinguished Achievement Award

The ICSA Distinguished Achievement Award is presented to individual(s) “In recognition of the distinguished achievement in statistical research and unselfish support of the association”, as noted at the ICSA website: <https://www.icsa.org/distinguished-achievement-award/>.

Eligibility: Nominees must be ICSA members with good standing, being a member of ICSA for at least the past three consecutive years. Members of the Award Committee and the Executive Committee are not eligible to receive the award during the term of service.

Nomination Process: Nominator is responsible for preparing a complete package for the nominee that should at minimum contain the following 1) nominee’s most recent curriculum vitae; 2) cover letter from the nominator summarizing the nominee’s achievement in statistical research and unselfish support of the association. Besides items 1) and 2), additional nomination material such as recommendation letters is encouraged but not required. Please send the nomination materials to Award Committee Chair, Zhigang Li, via email to zhigang.li@ufl.edu with the subject entitled “Distinguished Achievement Award Nomination”. Nomination items can be sent as pdf, ps or plain text attachments.

Deadline: The deadline for nomination is May 1, 2023.

Outstanding Young Researcher Award

The ICSA Young Researcher Award is presented to young scholar(s) “In recognition of the outstanding research in statistical theory, methodology, and/or applications” as noted at the ICSA website: <https://www.icsa.org/awards/outstanding-young-research-award/>.

Eligibility: Nominees must be ICSA members for at least the past year. Eligible nominees should have obtained their PhD degree or an equivalent de-

gree in the past six years. For example, an individual eligible for 2023 must have received a doctoral degree dated 2017 or later.

Nomination Process: Nominator is responsible for preparing a complete package for the nominee that should contain the following 1) nominee’s most recent curriculum vitae; and 2) cover letter from the nominator summarizing the nominee’s achievement in statistical research and/or applications. Additional nomination materials such as recommendation letters are encouraged but not required. Send the nomination materials to Award Committee Chair, Zhigang Li, via email to zhigang.li@ufl.edu with the subject entitled “Outstanding Young Researcher Award Nomination”. Nomination items can be sent as pdf, ps or plain text attachments.

Deadline: The deadline for nomination is May 1, 2023.

Outstanding Service Award

The ICSA Outstanding Service Award is presented to individual(s) “In recognition of the individual’s dedicated effort, unselfish support, and outstanding service to the association”, as noted at the ICSA website: <https://www.icsa.org/awards/outstanding-service-awards/>.

Eligibility: Nominees must be ICSA members with good standing, being a member of ICSA for at least the past three consecutive years. Members of the Award Committee and the Executive Committee are not eligible to receive the award during the term of service.

Nomination Process: Nominator is responsible for preparing a complete package for the nominee that should contain the following 1) nominee’s most recent curriculum vitae; and 2) cover letter from the nominator summarizing the nominee’s service to the association. Additional nomination materials such as recommendation letters are encouraged but not required. Send the nomination materials to Award Committee Chair, Zhigang Li, via email to zhigang.li@ufl.edu with the subject entitled “Outstanding Service Award Nomination”. Nomination items can be sent as pdf, ps or plain text attachments.

Deadline: The deadline for nomination is May 1, 2023.

Report from Statistics in Biosciences (SIBS)

Joan Hu and Hongkai Ji

Statistics in Biosciences (SIBS) is one of the two statistical journals established by ICSA. It publishes articles on development and application of statistical methods and their interface with other quantitative methods, such as computational and mathematical methods, in biological and life science, health science, and biopharmaceutical and biotechnological science. The journal has three issues each year, consisting of regular articles as well as topic-oriented papers in special issues. See more information on the journal's website, <https://www.springer.com/journal/12561>.

SIBS currently has four special issues in preparation for publication (<https://www.springer.com/journal/12561/updates/23349828>):

- “Machine Learning Algorithms in Genomics and Genetics” (Guest-editor: Yingying Wei, Chinese University of Hong Kong)
- “Novel Statistical Approaches for Modeling Exposure Mixtures and Health Outcomes” (Guest-editors: Zhen Chen and Paul Albert with NIH).
- “Machine Learning in Biomedical Sciences” (Guest-editors: Dehan Kong, University of Toronto and Bingxin Zhao, University of Pennsylvania).
- “Statistical Methods, Algorithms and Applications in Biomedical Data Integration” (Guest-editors: Peter X. K. Song, University of Michigan and Lu Tang, University of Pittsburgh).

We welcome proposals of new special issues for SIBS from ICSA members.

Each year Statistics in Biosciences (SIBS) selects best papers published in the previous year for its annual Best Paper Awards, an award initiated in 2021. The award committee consists of the most recent Past Editor (chair) and the Present Co-Editors. The SIBS's Best Paper Awards are announced at the ICSA Applied Statistics Symposium of the year. Each of the awards includes a certifi-

cate from Springer/SIBS and a check up to \$1,000 (USD) from ICSA/SIBS. The authors of the papers are invited to talk in the SIBS sponsored session at the ICSA Applied Statistics Symposium of the year. We are pleased to announce that the 2023 SIBS Best Paper Awards are given to

- Wenlin Yuan, Ming-Hui Chen, John Zhong, “Flexible Conditional Borrowing Approaches for Leveraging Historical Data in the Bayesian Design of Superiority Trials”, Statistics in Biosciences, Vol. 14, Issue 2
- Hugo Dolan, Riccardo Rastelli, “A Model-Based Approach to Assess Epidemic Risk”, Statistics in Biosciences, Vol. 14, Issue 3
- Tianqi Liu, Ming Yuan, Hongyu Zhao, “Characterizing Spatiotemporal Transcriptome of the Human Brain Via Low-Rank Tensor Decomposition”, Statistics in Biosciences, Vol. 14, Issue 3

Congratulations to the winners on their excellent contributions to the statistics and scientific community and SIBS!

SIBS is working on enriching its publication portfolio by attracting more software and resource manuscripts, review articles, and commentaries. We have reached out to a number of potential contributors and will continue to solicit submissions in these categories from the community.



*Joan Hu, PhD,
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*Hongkai Ji, PhD,
Professor,
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Johns Hopkins Bloomberg School
of Public Health,
Baltimore, MD 21205, USA.*

Statistics in Biosciences CALL FOR PAPERS

Special issue on “Novel Statistical Approaches for Modeling Exposure Mixtures and Health Outcomes”

We invite submissions to the special issue of Statistics in Biosciences dedicated to statistical approaches for modeling exposure mixtures and health outcomes. Recent literature has seen an increased interest in modeling numerous exposures and their relations with various health outcomes. For example, cancer epidemiologists are often interested in human exposures to environmental pollutants and their associations with mortality and morbidity of lung cancer, and researchers in human reproduction are interested in how maternal metabolites are associated with neonatal anthropometries. Common challenges in these analyses include numerous potential exposures of interest, high degrees of correlation between some of these exposures, non-uniform data distributions, non-linear relationships between exposures and outcomes as well as complex interactions, and a prevalence of measurements below the limit of detections, among many others. New methods for exposure mixtures are being developed, yet more work is needed in comparing these methods from both a theoretical and applications perspective. Moreover, with ubiquitous availability of big exposure data and increased desire in under-

stand biological mechanisms from exposures to diseases, new methodological developments are needed in many fronts of exposure mixtures modeling, including causal mediation analysis and sparse and scalable analytical procedures.

The special issue welcomes new methodological developments as well as interesting applications in modeling exposure mixtures. It also welcomes up-to-date reviews of current tools in this area. All submissions must contain original unpublished work not being considered for publication elsewhere. Submissions will be refereed according to the standard procedures for Statistics in Biosciences. The new deadline for submissions is March 31, 2023.

Papers for the special issue should be submitted using the journal’s submission system at <https://www.editorialmanager.com/sibs/default1.aspx>. In the system, please choose the special issue on Novel Statistical Approaches for Modeling Exposure Mixtures and Health Outcomes.

Co-Editors for the special issue:

- Zhen Chen, Ph.D., National Institutes of Health. Email: zhen.chen@nih.gov
- Paul S Albert, Ph.D., National Institutes of Health. Email: albertp@mail.nih.gov

Report from the ICSA Springer Book Series in Statistics

Ding-Geng Chen

ICSA Book Series in Statistics (Print ISSN: 2199-0980, Electronic ISSN: 2199-0999) was established in the year 2012 between ICSA and Springer. With this initiative, Professor Jiahua Chen was appointed as the editor-in-chief of this book series. In 2014, Professor Ding-Geng Chen joined with Professor Jiahua Chen as co-editorship for this book series. In 2020, Professor Jiahua Chen stepped down as the editor after his successful five-year editorship, and

Professor Ding-Geng Chen is the current editor-in-chief of the ICSA Book Series in Statistics.

From 2012 to 2022, this book series has successfully published twenty-four (24) books in statistics, biostatistics, bioinformatics, biopharmaceutical biostatistics, data sciences, and public health, as listed online at <https://www.springer.com/series/13402>.

Two new books were published in 2022: 1) Emerging Topics in Modeling Interval-Censored Survival Data, co-edited by Jianguo Sun and Ding-Geng Chen, and 2). Advances and Innovations in

Statistics and Data Science, co-edited by Wenqing He, Liqun Wang, Jiahua Chen, and Chunfang Devon Lin.

The ICSA Book Series in Statistics is aimed to showcase research from the International Chinese Statistical Association that has an international reach. It publishes books on statistical theory, applications, and statistical education. All books are associated with the ICSA or are authored by invited contributors. Books may be monographs, edited volumes, textbooks, and proceedings.

To all ICSA members, you and your colleagues

are professionally welcome to contribute to this book series to make it successful for our International Chinese Statistical Association. Please contact Professor Ding-Geng Chen at dinchen@asu.edu for your interest.

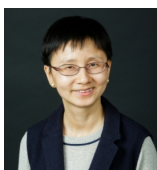


*Ding-Geng Chen , PhD,
ASA Fellow,
Executive Director and Professor
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Arizona State University,
Phoenix, AZ, USA.*

ICSA Financial Report

Profit and Loss: July 1, 2022 through Dec 31, 2022.

Beginning Cash Balance (Bank/Symposium/Paypal accounts)	7/1/2022	\$ 499,117.09
Income:		
Membership from Paypal Account		\$ 21,000.00
Membership from Institute of Mathematical Statistics		\$ 340.00
2022 ICSA Donations		\$ 9,000.00
Registration from 2022 China Conference		\$ 2,364.65
Springer Science & World Scientific Publishing Co.		\$ 3,069.09
Job Posting		\$ 1,050.00
Interest		\$ 43.46
Total Income		\$ 36,867.20
Expense:		
ICSA Office Cost		\$ (18,421.00)
2022 ICSA Symposium cost		\$ (54,986.07)
ASA events		\$ (8,983.45)
IT Cost		\$ (3,595.25)
China Conference Speaker Honorium		\$ (4,000.00)
Research Awards		\$ (2,500.00)
Institute of Stat Science		\$ (2,266.05)
2021 Tax Expense		\$ (1,593.50)
JP Hsu Award		\$ (550.00)
Paypal and Bank Fee		\$ (643.42)
Total Expense		\$ (97,538.74)
Net Total Income		\$ (60,671.54)
Balance Adjustment (reverse overtransaction)		\$ 3,870.97
JPHsu Investment Income/Expense		\$ (255.15)
Ending Cash Balance (Bank/Symposium/Paypal accounts)	12/31/2022	\$ 442,061.37
ASSETS		
Bank/PayPal		\$ 442,061.37
Vanguard Investment Balance		\$ 793,473.97
TOTAL ASSETS		\$ 1,235,535.34
LIABILITIES & EQUITY		
Equity		
Main Accounts Opening Balance July 1, 2022		\$ 372,719.98
July 1 to Dec 31, 2022 Net Income(+)/Expense(-)		\$ (10,263.50)
From 2021 Applied Symposium Account		\$ 35,619.73
To JP Hsu Award Account		\$ (22,951.96)
For JP Hsu Account Opening Balance Sep 6, 2022		\$ 22,951.96
JP Hsu Award		\$ (550.00)
July 1 to Dec 31, 2022 Net Income(+)/Expense(-)		\$ (255.15)
2018 Symposium Bank Accounts Opening Balance July 1, 2022		\$ 4,700.00
July 1 to Dec 31, 2022 Net Income(+)/Expense(-)		\$ -
2021 Symposium Bank Accounts Opening Balance July 1, 2022		\$ 35,620.73
July 1 to Dec 31, 2022 Net Income(+)/Expense(-)		\$ (1.00)
To Main Account (closure)		\$ (35,619.73)
2022 Symposium Bank Accounts Opening Balance July 1, 2022		\$ 86,076.38
July 1 to Dec 31, 2022 Net Income(+)/Expense(-)		\$ (45,986.07)
Vanguard investment account opening balance on July 1, 2022		\$ 797,929.25
July 1 to Dec 31, 2022 Investment Profit(+)/Loss(-)		\$ (4,455.28)
Total Equity		\$ 1,235,535.34



*Rui Feng, PhD,
Treasurer, ICSA
Associate Professor of Biostatistics,
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XL-Files: XL is X (or LX)

Xiao-Li Meng

Editorial: This is a reprint from a column article published in the *IMS*; <https://imstat.org/2022/12/13/xl-files-xl-is-x-or-lx/>) with *IMS*' permission.

Aging is a process that few look forward to, but like everything else in life, it is not without its silver linings. One of them is getting invitations to toast and roast your friends (or secret foes), at their expense. In the last month alone, I was invited to an LX, an LXX, and a, well, X birthday symposium. The Roman numerals seem especially useful here because some ages prefer to remain anonymous. I gather few birthday stars would mind the imputing X, a perfect ten, and a symbol especially dear to our profession. Of course, I also have a self-serving reason to invoke X. No, I don't mind disclosing my age, especially as its Roman numeral is already embedded in my initials. (Incidentally, for those who make a living in the US, I assume we would all be happier to see MXL, my un-Americanized initials, than seeing its Arabic equivalence). Rather, it is because I have my own X anniversary to celebrate, and you, dear reader of the XL-Files, are invited. To thank you for your decade-long indulgence of my Chinglish, I offer—below—the XXXIII XL-Files choices for you to toast or roast. (Whatever you choose to do, I'd recommend it be well done. But if you prefer medium rare, well, be warned that food-for-thought poisoning is more than a thought.)

A Decade of XL-Files, from I to XXXIII

- | | |
|--|--|
| (i) 2013 Statisticians' Impact: from Backyard to Bedroom? | (x) 2014 My Valentine's Escape |
| (ii) 2013 A Fundamental Link between Statistics and Humor | (xi) 2014 The Future of Statistics...? |
| (iii) 2013 If You Think Statistics is Hard, Try History... | (xii) 2014 Leadership: are you open for it? |
| (iv) 2013 Statistical Classics and Classical Statistics | (xiii) 2014 Pray with me, statistically |
| (v) 2013 From t to T | (xiv) 2015 Frequent(-ist) Flu and Fiducial Cure? |
| (vi) 2013 Rejection Pursuit | (xv) 2015 The ABC of Wine and of Statistics? |
| (vii) 2013 Ig Nobel and 24/7 | (xvi) 2015 More Joy of Statistics, not (merely) Job of Statistics |
| (viii) 2013 Romantic Regression Towards the Mean | (xvii) 2015 Yo-Yo Ma on Machine (or Massive) Learning |
| (ix) 2014 Nobel Prize in Statistics? | (xviii) 2016 Lectures (Marriages?) That Last |
| | (xix) 2016 Peter Hall of Fame |
| | (xx) 2016 Statistics vs Data Science: a 30-year-old prediction? |
| | (xxi) 2016 A Nobel Prize in Statistics, finally... |
| | (xxii) 2017 2016, In Memory and In Memoriam |
| | (xxiii) 2017 Bayesian, Fiducial and Frequentist: BFF4EVER |
| | (xxiv) 2017 Why (good) statisticians tend to be happier |
| | (xxv) 2017 The "IMS" Style: Inspirational, Mathematical, and Statistical |
| | (xxvi) 2017 ISIPTA-ECSQARU, BFAS-SMPS & WHOA-PSI |
| | (xxvii) 2018 It's hard to publish, but impossible to unpublish |
| | (xxviii) 2018 BFF and BGF for IMS |
| | (xxix) 2019 Time travel and dark data |
| | (xxx) 2020 COVID Coping and the Law of Most People |
| | (xxxii) 2021 Opinion Polling: Its Secret Sauce is also its Spoilage Source |
| | (xxxiii) 2022 When a Statistician becomes a (COVID) Statistic |
| | (xxxiiii) 2022 I am not Yo-Yo Ma |

Annual tally of XL-Files columns

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
VIII	V	IV	IV	V	II	I	I	I	II

Just in case you are thinking, “Oh no, the aging XL is regressing into a Roman numerologist”, this finding is perfectly interpretable, without any overfitting. The V-years were exactly those where I was provided a team of over L members, responsible for ensuring the smooth operations of more than LV PhD programs year around; and the VC(V complement)-years started with my appointment as the founding Editor-in-Chief of Harvard Data Science Review (HDSR), where I only had (and have) the resources to recruit a team of II members. Whereas a graduate school will continue to sail or at least flow without a dean’s navigation, for a start-up, every individual’s involvement can be the difference between sink or swim, especially when launching anything of scale but without scalable resources. I therefore had to devote XL hours a week (sometimes I wonder if my parents foresaw that number when they named me, LX years ago) to HDSR, and that of course was in addition to my paid job (which reminds me annually of the Form MXL). Dropping the V from the annual count of XL-Files was therefore a sad but necessary coping

step. It’s sad because composing XL-Files always entertains me, with my mind meandering, ten digits dancing, and laughing gear lubricating (Hint: it’s V o’ clock somewhere…).

But again, every pain can generate gains, some of which are rather unexpected. The following remarks document one of those delightful occasions, though without the accompanying slides—or the abundant social lubricants—you need to exercise your imagination. While you are at it, could you imagine my delight of being effectively given a lavish birthday party without having to worry about getting roasted and toasted? I of course thank my coeval, Amy Brand from MIT Press, for that. Go ahead and imagine this is your free, and worry-free, celebration too, if you have the same amount of hair as me.



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A Conversation With Dr. Lawrence Tabak and Dr. Lyric Jorgenson on the NIH Perspective on Data Sharing and Management

Lawrence Tabak, Lyric Jorgenson, Maryann Martone, and Richard Nakamura

transcript of the interview below. The transcript that appears below has been edited for purposes of grammar and clarity.

Editorial: This article is originally published on Harvard Data Science Review, Issue 4.3, Summer 2022. DOI: <https://hdsr.mitpress.mit.edu/pub/kdgv0d1/release/5?readingCollection=b697ca32>. HDSR includes both an audio recording and written

ABSTRACT

In June 2022, Harvard Data Science Review (HDSR) guest editors for the special theme on Changing the Culture on Data Management and Data Sharing in Biomedicine, Maryann Martone and Richard Nakamura, conducted an online interview with Dr. Lawrence Tabak, Acting Director of the National Institutes of Health (NIH) and Dr. Lyric Jorgenson, Acting Associate Director for Science Policy and the Acting Director of the Office of Science Policy at the NIH. The quartet talked about the importance of the new data management and sharing policy to the NIH and updates on the NIH's activities and priorities since the April 2021 workshop on data management and sharing.

Interview

Richard Nakamura (RN) [00:00:00]: Welcome to Conversations With Leaders, a production from the Harvard Data Science Review. I'm Richard Nakamura, retired former director of the National Institutes of Health Center for Scientific Review, and former deputy director and scientific director of the National Institute of Mental Health.

Maryann Martone (MM) [00:00:18]: And I'm Maryann Martone, professor emerita in the Department of Neurosciences at the University of California, San Diego. Today we are talking about the implementation of the data management and sharing policy issued by the National Institutes of Health and discussed at the National Academies of Science, Engineering, and Medicine meeting in April 2021. The policy goes into effect in January 2023. This interview is part of a special collection of articles for the Harvard Data Science Review to be released in summer of 2022 in anticipation of the data sharing and management plans due in grant applications starting January 2023.

RN [00:01:01]: We are joined today by Dr. Lawrence Tabak, acting director and longtime principal deputy director of the National Institutes of Health.

MM [00:01:12]: And Dr. Lyric Jorgenson, acting associate director for science policy and the acting director of the Office of Science Policy at the NIH.

RN [00:01:24]: So have there been any National Institutes of Health or federal policy changes on

data sharing and management since the National Academies of Science, Engineering, and Medicine meeting of April [2021]?

Lyric Jorgenson (LJ) [00:01:40]: I'm happy to take that one. There's been a lot of work that has gone since we last met then—since the Academies workshop took place, I can talk about a good share of it—but in general the Federal Government is really committed to this topic, has a lot of interest in advancing these aims. I think Dr. Tabak could talk, at least from the elements of the COVID experiences of how this has brought this really into focus. I don't know if, Dr. Tabak, you'd like to start with that, and then I can talk about some specific NIH activities.

Lawrence Tabak (LT) [00:02:08]: Well, I think the general principle of data sharing equals good science. It ensures transparency, it ensures a greater confidence in what scientists are doing. And obviously, it also extends the value of what scientists are doing. This came into very sharp relief during the pandemic, where it was essential for investigators to share their data as rapidly as possible. And I think, overwhelmingly, the scientific community did just that. And as a result, everybody benefited. You know, as you know, when you're dealing with something that's an unknown, the best way to solve the problems is for everybody to put their heads together. And that was done virtually and in rapid order. And it transcended academia, industry, and the government sectors, perhaps in an unprecedented way. But now that we've been able to do that, I'm not sure there's any way we would want to turn back. It has just proven to be too valuable.

LJ [00:03:19]: Some of the specifics directly related to the workshop, as Dr. Tabak mentioned, there is a real commitment to making this work. There's a real value in seeing real-time data sharing, frankly, as we saw with COVID. After the workshop, the value has been not only in sharing the data, but understanding how to make it accessible and usable. Just having the data available for people to peruse doesn't mean it's meaningful or useful. And again, we've learned a lot of this with COVID, and researchers have known this for some time. Just simply putting data out there does not mean it will be used or people can find it. So NIH has been thinking a lot in terms of implementing the data management sharing policy, not to make it a checkbox of things that we ask researchers to do, but to make a meaningful culture shift in how information is used

and accessed. So we've been working very closely with our Office of Data Science and Strategy, held up by Dr. Susan Gregurick, who's been doing amazing work in getting repositories to be accessible and interoperable and in compliance with FAIR standards. We're working very closely with our Office of Extramural Research (OER), who has been thinking about the additional incentives to be able to make this information accessible to the public and in central locations for sustainability purposes. So I think we've seen a lot here at NIH. The White House, as I mentioned, is also really committed to this, just in the past couple of weeks, released some more guidance around repository characteristics again, so that we are working in lockstep agreement with our partners to advance this forward in a way that is useful for the community.

LT [00:04:49]: And I think it's important to add that this policy didn't just arise in Bethesda; this came as a result of extensive consultations with investigators, with various institutions, with research participants. We did a special outreach to tribal nations because of their sovereignty and unique issues that they are concerned about and too many others to ensure that what we came up with was responsive to what is, of course, the very broad breadth and diversity of research. And so this was not done in a vacuum and hopefully does not come as a surprise to anybody.

RN [00:05:35]: What progress has been made on the issues raised at the meeting for changing the culture?

LT [00:05:41]: Well, you know, let me start. Changes in cultural shifts are difficult to measure, but people are not bashful when they comment about changes that the NIH undertakes. And I would say for the most part, we are already seeing a pretty reasonable buy-in, at least conceptually. I think everybody says, 'Well, this is a great idea. It's very important. But—' And you know it's going to follow '—the devil is in the detail.' And that's now what we're really working towards: really elaborating on some of those details to reassure people that this is all being done in a thoughtful way, in a way that is doable and that will not yield undue burden on anybody. But again, it's new. And so folks understandably have some level of disquiet. But I would say on balance, conceptually, everybody buys in. And now it's just a question of working through some of the detail.

LJ [00:06:47]: And as you all know from the meeting, we heard about some of those details that needed or would benefit from being further addressed, right? A decent amount of the meeting was devoted to those topics. So we have worked to take some of those issues raised at the meeting to really implement some solutions or at least some activities. So for instance, one of the questions is how do we share participant data in a way that is respectful, respects privacy, identifiability. Some researchers know this field really well; others will be a little bit newer to it. So we've been working on developing guidance for the community about how do we protect participant privacy and respect autonomy in research. And so that is out for public comment now to be able to help researchers and move forward and do that respectfully. We also have been working, as Dr. Tabak mentioned, with our tribal partners and have been putting out guidance for how to work with tribal communities and some of the unique considerations researchers may need to be thinking about in terms of moving forward with their work. We also have some additional FAQs that we've released, a beautiful new website we heard at the community meeting as well that this information is relatively diverse and where it is located, to put it mildly. And so OER did a very beautiful job in putting this all together on a centralized site for NIH so it can be a one stop shop for researchers to be able to know where this is located. Also, what we heard about at the meeting is 'Is the policies important?' Balancing carrots and sticks is key. The culture change here were trying to move really requires both. The policy has some sticks, of course, for compliance, but what are the incentives? So we heard a lot about having credit for data generators. We've been working to think about persistent identifiers and how we can give credit to researchers. We've also been working with our journal publishers and others to be able to think about where those credit mechanisms can lie. And I think that the big thing that Dr. Tabak raised is there's a general consensus for wanting to do this, but it needs to be not burdensome. And we all understand why, because there is increasing burden, we need to make sure it's commensurate with benefit. And so we are really working to how to provide the least burdensome processes for investigators to be complying with this and streamlining, for instance, our GDS [Genomic Data Sharing] policy plan requirements with our data sharing plan requirements because no one wants to be submitting multiple plans based on unique data sets, right? So looking where we can reduce any of the burden that really is not valuable for researchers has been a real

priority since this meeting.

LT [00:09:12]: And we're continuing to develop the resources that will enable compliance, to try and make things easier. Again, no one disagrees with the principles of FAIRness, right? Findability, accessibility, interoperability, and reusability. Nobody disagrees with that. In fact, everybody wants it. Where do I sign up? It's just a question of how best to implement that. And I think we are making good strides toward that goal.

RN [00:09:43]: I'd like to hear a little bit more about two things. One is ensuring equity of costs and benefits. There was a concern about that issue. And then ensuring compatibility of federal, international, and private sector approaches to sharing.

LT [00:10:00]: I'll let Lyric start, and then I can build on what she says.

LJ [00:10:05]: I'll tackle the first question around equity and cost and sharing. And this builds on nicely to the point that Dr. Tabak raised: we really want a robust ecosystem of data sharing. We want data sharing and data to be considered a research output, just like a publication is a research output, recognizing through that it might take us a while to get that to be ingrained in the culture, and we want to make sure we keep researchers all moving in that direction. So there are some flexibilities in the policy for deliberate reasons to ensure we can lift all boats and not actually create inequities in our funding stream. So, for instance, having the FAIR principles required, it was a real conversation piece for us. As Dr. Tabak mentioned, we very much strive for that. But we also didn't want to cut people out of the ability to participate in NIH funded research for not having the infrastructure in place to be able to do so. We want to help, again, help our researchers get there and make these infrastructure systems, which again is a lot of the work that our Office of Data Science Strategy is doing. So we've been thinking a lot in terms of, again, this is supposed to be a culture shift. It's not intended to be punitive. Of course we're prepared to take compliance actions, but how do we lift all boats to make science better?

LT [00:11:18]: And your question about compatibility both with other funders and international funders: obviously we can control what we can control

and there are certain things that are out of our control. But certainly the expectations that we have are very much in alignment with the NSF [National Science Foundation], with the Wellcome Trust, and with the Gates Foundation. And I think another catalyst for this is increasingly, as you both know, the journals are requiring more robust sharing as a condition for publication. And so there's a bit of a push pull. The funding organizations lay out what their expectations are. The journals are getting in alignment with us. And that's the perfect mix because obviously investigators want to publish their work. And if they have to do this in order to publish it, that's sort of the ultimate incentive, if you will. But we are certainly in alignment with major funders. And again, we'll continue to refine this. As you know, we have significant collaborations with all of the major funders, and we'll continue to refine this as necessary.

RN [00:12:39]: Maryann?

MM [00:12:41]: Yes. Thank you. You touched on this a little bit in your previous answers, but at the workshop it was recognized that the policy requires the creation of the data management and sharing plan, and that needs to go through review. But a major topic was compliance and enforcement follow through. It was really felt by many of the participants that without enforcement, the policy would not succeed in changing the culture. So we'd like to ask you about what steps the NIH is going to take to determine whether researchers are actually following up with their stated plans.

LT [00:13:12]: Well, this is important. And so it'll become a part of what we've termed the term and condition of the award. It is, as I'm sure you both know, this is the sort of agreement that one makes with the institution. So it's at the institutional level, and the compliance of this will be monitored at regular reporting intervals. And we've been pretty transparent that compliance of not only this issue, but those things that are in the terms and conditions can be taken into account for future funding decisions. Now, again, the ultimate stick, if you will, which hopefully one never has to use, but because it's at an institutional level, there is an inherent incentive institutionally to make sure that your faculty are adhering to what the expectations are. And is one of the advantages of working at the institutional level: no one wants to jeopardize an entire institutional program. I don't know if there's additional details that you want to share, Lyric?

LJ [00:14:23]: I think that that is as perfect answer for from the NIH perspective. And one of the things from the workshop that we also heard. That the data sharing will be an ecosystem-wide challenge for people to be thinking about. And so there is some work to try to make the plans publicly available. That's coming down the road. It probably won't happen right at launch. But again, there is some accountability and transparency among the research community themselves to be able to look at plans that should cite where the data should be posted so that they can go to those repositories to be able to find information. So the compliance component—of course, NIH has its official mechanisms, as Dr. Tabak described—but there will also be some community involvement, which I think will help urge people to move in the right direction here.

MM [00:15:07]: Thank you very much. I think that answer will be reassuring to many. And finally, do you want to make an additional, overarching statement on the importance of data sharing to NIH and science?

LT [00:15:18]: Well, I mean, I can't overstate this. It's really the essence of what we do. And as we have now seen unambiguously during the pandemic, progress is dramatically accelerated when you have data sharing among all interested parties. We can't go back; we have to continue to forge forward. We want to be able to extract every usable bit and bite of the data that is generated. We want to maximize the public investment in science. And also, quite frankly, by sharing, you are reassuring people about the data, about the process. And at a time when,

unfortunately, some people are articulating distrust or disquiet with science, I think it's even more important that we share data as one really good way of overcoming that distrust or disquiet. And so we are 1000% supportive of this. We're devoting tremendous amounts of energy and staff time to this and want very much to work with our communities to ensure that this is as successful as possible as soon as possible.

MM [00:16:50]: Dr. Jorgensen?

LJ [00:16:52]: You heard it from NIH leadership.

MM [00:16:58]: Thank you so much for sitting down with us today. And we look forward to future success of this policy and also getting the special issue out finally.

LT [00:17:09]: Well, good luck with that. I'm sure it's hanging over your heads and you want to finish it as soon as possible and then enjoy the rest of your summer. So, best of luck to both of you. And thanks very much for engaging with us today.

Disclosure Statement

Richard Nakamura, Lawrence Tabak, and Lyric Jorgenson have no financial or non-financial disclosures to share for this interview. Maryann Martone is a founder and has equity interest in SciCrunch Inc, a tech start up that provides tools and services in support of rigor and reproducibility.

Data Science an Interdisciplinary Learning for Statisticians and Computer Scientists

This interview is conducted between ChatGPT and Dr. Haoda Fu.

ChatGPT Introduction

Haoda Fu is an Associate Vice President and Enterprise Lead for Machine Learning, Artificial Intelligence, and Digital Connected Care at Eli Lilly and Company. He holds a PhD in statistics from University of Wisconsin - Madison and is a fellow of the American Statistical Association and the Institute of Mathematical Statistics. With over 100 publications in various areas of statistics and machine learning, Dr. Fu is a well-respected expert in his field.

Interview

ChatGPT: Good morning, Dr. Fu. It's an honor to have you with us today. You have an impressive background leading a large data science team. Can you explain what data science is and why it's important in today's world?

Haoda Fu: Sure! Data science is a field that combines statistics, computer science, and domain expertise to extract insights and knowledge from data. With the ever-increasing amount of data being generated in today's world, data science has become increasingly important in helping organizations make informed decisions.

Modern data scientists can analyze data previous either not treated as data sources or were considered extremely difficult to analyze. In other words, the definition of data is expanding. Here is an interesting example: Wikipedia is a database.

We all know Wikipedia, and many of use used it occasionally to search information. But others consider Wikipedia is a large database to train their models, such as ChatGPT. Traditionally, data were thought of as rows and columns in spreadsheets, but modern data science and deep learning with sophisticated architecture allow us to analyze data in a much broader sense, such as Wikipedia, ImageNet, and AudioSet. In recent years, data scientists have

also developed broader modeling approaches that allow us to leverage external databases to augment data, such as transfer learning, foundation models, and knowledge distillation.

Let's examine our history. Approximately 400 years ago, people invented telescopes and microscopes, which allowed humans to observe Jupiter's moons and bacteria that couldn't be seen with the naked eye. Today, data science serves as the equivalent of these instruments, uncovering rules and principles that would otherwise go unnoticed.

ChatGPT: That's a great explanation. As a statistician and AI expert, what do you think statisticians can learn from other disciplines such as computer science and operational research?

Haoda Fu: Statisticians can learn a great deal from computer science and operational research, especially in areas such as low-level programming, data structure, algorithms, design patterns, mathematical optimizations, and numerical analysis.

For example, understanding low-level programming languages like C/C++ is still relevant for data scientists. A lack of understanding in basic concepts, like memory allocation and resource management, can make it difficult to work with high-level languages like Python and R. Design patterns can also help data scientists organize their code, improve code readability and maintainability, and reduce the time needed to solve problems. Using design patterns can also improve performance and scalability by reducing complexity and optimizing algorithms.

Mathematical optimization is also crucial for data scientists. Choosing the right optimization method for a given problem will increase the range of problems that can be solved. Understanding a model's performance also requires a good grasp of mathematical optimization.

ChatGPT: That's insightful. I understand that computer scientists are also part of your team. Can you tell us what computer scientists can learn from statisticians?

Haoda Fu: Yes, of course. Computer scientists can benefit from learning more about rigorous data analytic thinking by understanding how to evaluate signals from noise, control multiplicities, understand causality, and potential outcome frameworks. This will help them to better analyze complex data types, such as time-to-event data and longitudinal data, and make informed decisions based on the data. Design of experiments is another important area in statistics that our team is benefiting from. There are decades of research on how to obtain data more efficiently to address specific questions. These skills will help computer scientists make more informed decisions based on the data they work with.

Editor: That's very great. To end, do you have any final thoughts you'd like to share with our readers?

Haoda Fu: The key takeaway is that interdisciplinary learning is critical in the field of data science. By working together and learning from each other, we can build better models, make better decisions, and solve big problems to make real social impact.

It's time for statisticians and computer scientists to come together and embrace the era of AI/ML.

Closing

In conclusion, Dr. Haoda Fu believes that the future of data science and artificial intelligence is a multidisciplinary one, and it's crucial for statisticians and computer scientists to learn from each other to advance the field further. As he pointed out, statisticians should embrace the era of AI/ML and expand their knowledge in various areas. Meanwhile, computer scientists should learn more rigorous data analytic thinking from statisticians to better understand how to analyze complex data types and address big problems in the world.



*HaodaFu, Ph.D.
Associate Vice President,
AI/Machine Learning, AADS*

Upcoming Events

Please find below a list of upcoming ICSA meetings and co-sponsored meetings. This list also appears on the ICSA website. If you have any questions, please contact Dr. Mengling Liu, the ICSA Executive Director (executive.director@icsa.org).

ICSA Sponsored Meetings:

ICSA 2023 China Conference

TBD 2023

The ICSA 2023 China Conference will be held at Chengdu, co-sponsored by Southwest Jiaotong University (SWJTU).

ICSA Co-sponsored Meetings:

The 8th Workshop on Biostatistics and Bioinformatics

Postponed to Spring, 2023

Biostatistics and Bioinformatics have been playing key and important roles in statistics and other scientific research fields in recent years. The goal of the 8th workshop is to stimulate research and to foster the interaction of researchers in Biostatistics & Bioinformatics research areas. The workshop will provide the opportunity for faculty and graduate students to meet the top researchers, identify important directions for future research, facilitate research collaborations. The workshop will be held at Atlanta, GA.

A keynote speaker is Dr. Nilanjan Chatterjee, Bloomberg Distinguished Professor of Biostatistics and Medicine at the Johns Hopkins University.

For detailed information including registration, please refer to <https://math.gsu.edu/yichuan/2022Workshop/>

Please contact Dr. Yichuan Zhao (yichuan@gsu.edu) for more information.

Statistical Foundations of Data Science and their Applications: A conference in celebration of Jianqing Fan's 60th Birthday

May 8–10, 2023

The conference, co-sponsored by ICSA, will be held at Princeton University in May 8-10, 2023. It will bring together collaborators and leading researchers

in statistics and data science. The conference will provide an excellent forum for scientific communications and promote collaborations among researchers in statistics and data science. The program covers a wide range of topics presenting recent developments and the state of the art in a variety of modern research topics on statistics and data science as well as their applications.

For more information, visit <https://fan60.princeton.edu/> or contact the local organizing committee chair: Matias D. Cattaneo (cattaneo@princeton.edu) or the program chair: Runze Li (rzli@psu.edu).

Call for ICSA Invited Session proposals for the 2023 IISA Conference

June 1-4, 2023

The 2023 International Indian Statistical Association (IISA) Conference will be held at the Colorado School of Mines from June 1-4, 2023. ICSA will organize several invited sessions in the IISA conference. If you have any proposals, please contact the ICSA Program Chair Prof. Xinpeng Cui (xpcui@ucr.edu), or the ICSA executive director Dr. Jun Zhao (executive.director@ICSA.org).

Dose Finding and Other Topics in Drug Development in Honoring Dr. Naitee Ting's 70th Birthday

June 7–9, 2023

The Dose Finding and Other Topics in Drug Development conference, co-sponsored by ICSA, will take place at University of Connecticut, Storrs Campus & Online, from June 7–9, 2023. Finding the right dose(s) is one of the most important objectives and challenging phase in new drug development. The first book on the subject, *Dose Finding in Drug Development*, was published in 2006 and edited by Dr. Naitee Ting. This book is highly regarded by his peers and is considered a leading reference title in the environs of dose response for clinical trials. Building upon basic principles found in the book, many advancements have occurred since. The conference covers these important topics, as well as other related topics, and celebrates the 70th birthday of Dr. Naitee Ting who helped to pioneer this field of research.

For more information about registration and short courses, visit <https://events.stat.uconn.edu>

[du/drug-development/index.html](#)

Each session, whether invited or contributed, will be allotted 90 minutes of presentation time. Presenters will be provided with 20 minutes to deliver their talks, while the remaining time will be dedicated to questions and answers. The session organizer is tasked with compiling and submitting the necessary information, including session titles, abstracts, and speaker details, ahead of the submission deadline of February 27, 2023. The Organizing Committee invites all eligible parties to submit proposals for contributed sessions, with guidelines readily accessible at Invited Sessions. If you have questions regarding the invited/contributed sessions, please email Qiqi Deng <qiqi.deng@modernatx.com> and Wen Zhou <riczw@rams.colostate.edu>.

IMS Asia Pacific Rim Meeting

Postponed to January 2024

The sixth meeting of the Institute of Mathematical Statistics Asia Pacific Rim Meeting (IMS-APRM) will provide an excellent worldwide forum for scientific communications and collaborations for researchers in Asia and the Pacific Rim, and promote collaborations between researchers in this area and other parts of the world. The meeting will be held in Melbourne, Australia and please see <http://ims-aprm2021.com/> for details. Firm dates will be announced later.

Online Training and Seminars:

Healthcare Innovation Technology: The Pod of Asclepius

Looking to stay up to date on developments in health care technology around the world? The American Statistical Association is sponsoring “The Pod of Asclepius”, a new podcast where data scientists, statisticians, engineers, and regulatory experts discuss the technical challenges in their healthcare domain.

We have over 20 episodes published and available on YouTube, Podbean, iTunes, Stitcher, Podchaser,

Tune In Radio, and Google Play. The easiest way to catch new episodes is to subscribe via our channels:

- Youtube: <https://www.youtube.com/channel/UCkEz2tDR5K6Aj1Kw-JrV57w>
- Podbean: <https://podofasclepius.podbean.com>
- You can see our full schedule on the website: www.podofasclepius.com

For detailed information, please visit: <https://www.podofasclepius.com/philosophy-of-data-science>.

Job Listings

Faculty Position at National Sun Yat-sen University

Kaohsiung, Taiwan The Department of Applied Mathematics at National Sun Yat-sen University invites applications for several full-time faculty positions (subject to the approval by the University) beginning August 1, 2023.

Recent PhDs with exceptional potential at the rank of assistant professor and/or internationally well-established senior candidates at the rank of associate or full professor will be considered. All areas of mathematics, applied mathematics, scientific computing and statistics, plus specialties in data science and AI will be considered. A successful candidate should have a relevant Ph.D., plus a strong research record and excellence in teaching. He/She should be able to teach in English. Applicants please send, by February 6, 2023, a cover letter of application, curriculum vitae, transcripts, research summary, representative reprints and three recommendation letters to:

Chairperson

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We also welcome applications from scholars with foreign nationalities and English proficiency.