ICSA Bulletin

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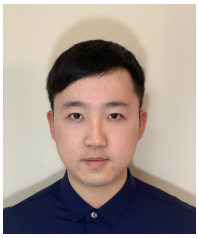
Editorial Staff

From the Editor

Chixiang Chen



Dear ICSA members:

Happy New Year to all! It is with great excitement and honor that I present the latest issue of the ICSA Bulletin, ushering in a new year filled with opportunities for growth, collaboration, and innovation within our vibrant community. The theme for the 2025 ICSA Bulletin is "Opportunities for the Next Generation of Statisticians and Data Scientists".

Before diving into the contents of this issue, I want to take a moment to express my heartfelt gratitude to our leadership team, board members, and the entire ICSA community for their steadfast support and dedication. Their collective efforts have been instrumental in bringing the ICSA Bulletin to life and ensuring its continued success. It has been a privilege to collaborate with the 2025 ICSA President, Dr. Hongyu Zhao, and the 2023–2025 Executive Director, Dr. Jun Zhao, whose leadership and vision have been invaluable in delivering this New Year issue on time. I would also like to extend my deepest thanks to all contributors who generously shared their expertise, perspectives, and insights, enriching this edition with their thoughtful contributions.

In this issue, we highlight the diverse contributions of our members and the broader statistical community. Specifically, this Bulletin introduces two new columns: (1) Virtual Interviews with an Established Lab and (2) Experience-Sharing from Successful Young Researchers. The first column offers labs an opportunity to share their experiences, including insights into research focus, mentorship, and lab management. These contributions aim to support principal investigators, particularly junior and mid-career researchers, as they build and lead their own scientific teams. The second column provides valuable guidance and actionable examples for students and junior researchers pursuing careers in statistics, biostatistics, and data science. These articles are designed to inspire and inform the next generation of professionals in our field. We extend our sincere gratitude to Dr. Qi Long and Dr. Linbo Wang for spearheading these initiatives. We also warmly welcome contributions from others who are interested in enriching these columns with their valuable insights in future issues.

In addition to these new columns, this issue features two compelling articles. The first, by Professor Xiao-Li Meng, shares his unique journey of partnering with leaders in the wine industry, demonstrating how statistics can be transformed from a daunting subject into an intriguing and practical discipline. This article is a reprint from a column article published in the IMS Bulletin with permission (link). The second article, authored by Dr. Kelly H. Zou, shares opinions about advancements, challenges, and opportunities in leveraging real-world evidence (RWE) for healthcare decision-making. This article is a reprint in the Amstat News with permission (link).

Moreover, this issue is packed with important reports and announcements regarding the ICSA community. It features messages from the 2025 ICSA President, Dr. Hongyu Zhao; the 2024 ICSA President, Dr. Xun Chen; the 2025 ICSA President-Elect, Dr. Rong Chen; and the 2023–2025 Executive Director, Dr. Jun Zhao. This issue also provides summaries of past activities and updates from various ICSA communities, including reports/updates from the ICSA core committees, ICSA chapters, the Outreach and Engagement Committee and the Webinar Sub-Committee, the ICSA financial report, the Springer book series, journals, and among others. Announcements about upcoming conferences, award nominations, and other initiatives are also included. Collectively, these updates reflect our community's shared commitment to advancing the fields of statistics and data science.

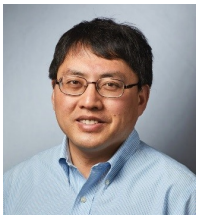
I hope this issue resonates with all our members and offers valuable insights. Your feedback and suggestions are highly encouraged and greatly appreciated. I would like to extend my heartfelt thanks to my assistant, Dr. Xue Wu from Merck, for her exceptional support in formatting and compiling the materials for this issue.

Best wishes for a joyful, healthy, and productive Year of the Snake. I look forward to receiving your feedback and to your active participation in future issues of the ICSA Bulletin.

Chixiang Chen, Ph.D.
Editor-in-Chief, ICSA Bulletin
Assistant Professor
Department of Epidemiology and Public Health,
Department of Neurosurgery,
Insitute for Health Computing (Bethesda),
University of Maryland, School of Medicine.

From the 2025 President, ICSA

Hongyu Zhao



Dear ICSA Members and Friends,

Happy New Year! First, I would like to thank the 2024 Executive Committee members, including president Dr. Xun Chen, past president Dr. Gang Li, executive director Dr. Jun Zhao and treasurer Dr. Rui Feng, for orienting me to my role throughout 2024. I have learned much from them about ICSA's operations from monthly meetings and experienced first-hand the dedication and efforts of the Executive Committee, the Board of Directors, Committee Chairs and members, conference chairs and members, and many ICSA members and friends.

As you can read from the ICSA newsletters and bulletins, ICSA accomplished much in 2024, with two highly attended and successful symposia in Nashville and Wuhan and many ICSA events at the Joint Statistical Meetings in Portland, highlighted by a memorable cruise. ICSA launched several initiatives, including a new Impact Award to recognize leaders who have made real-world impacts, many Webinars that touched on important topics in our profession and careers, and a fireside conversation on empowering statistics in the era of AI co-sponsored by ICSA that has attracted much attention and stimulated many follow-up discussions in our community. As one of the largest statistical associations in the world, our ICSA membership has grown to more than 2,200 in 2024!

We will have many opportunities to get together in 2025, including the ICSA Applied Statistics Symposium at the University of Connecticut from June 15th to June 18th, ICSA-China at Beijing Normal University in Zhuhai from June 28th to June 30th, and the ICSA International Conference in Taipei from December 17th to December 20th. The program committees and local organizers have been working hard to plan for these conferences. In addition, ICSA will host events at the Joint Statistical Meetings in Nashville from August 2nd to August 7th. Students and young researchers are especially encouraged to attend the ICSA conferences as they provide an ideal platform to interact with others with similar background and interests, and have the opportunity to be recognized with Junior Researcher Awards and Student Awards.

To engage ICSA members and build our community, we plan to host ICSA member-only events at other meetings, such as those co-sponsored by ICSA, ASA chapter meetings, and meetings that draw large audiences from pharmaceutical statisticians, data scientists, and AI researchers. We will make significant efforts to engage industry statisticians and recruit student members, and we hope ICSA can be a good community that helps develop careers of our members. We will also reach out to other statistical societies for more collaborative activities, such as joint membership, sessions, and events. We hope ICSA can be where statisticians from all sectors, all geographical regions, and all career stages to come together. There is so much for young and seasoned statisticians to learn from each other. There is always room for growth, and I hope ICSA can be a vehicle to facilitate this.

All the ICSA accomplishments would not have been possible without the passion and contributions to our society from all of you. I especially want to thank Dr. Gang Li (2023 ICSA President), Dr. Rui Feng (Treasurer from 2022 to 2024), and many committee chairs who have led in the past and new chairs who will champion ICSA in the new year. These include 2024 Program Committee Chair Dr. Xinping Cui, and 2025 Chair Dr. Qingxia Chen; 2024 Awards Committee Chair Dr. Zhigang Li, and 2025 Chair Dr. Yong Chen; 2024 Nominating and Election Committee Chair Dr. Yichuan Zhao, and 2025 Chair Dr. Hongjian Zhu; 2024 Special Lecture Committee Chair Ming Tan, and 2025 Chair Dr. Hongzhe Lee; 2024 Membership Committee Chair Dr. Zhigen Zhao, and 2025 Chair Dr. Tiejun Tong; 2024 Archive Committee Chair Dr. Naitee Ting, and 2025 Chair Dr. Jun Yan; 2024 Finance Committee Chair Dr. Rui Feng, and 2025 Chair Dr. Xin He; 2024 Financial Advisory Chair Dr. Fang Chen, and 2025 Chair Dr. Xiangqin Cui. Dr. Runze Li has graciously agreed to continue to chair the Publications Committee after serving two years with the selections of the two co-editors for Statistics in Biosciences. Dr. Chengsheng Jiang will continue to chair the IT Committee. The Constitution Committee will finish its mission under the leadership of Dr. Hongzhe Lee this year. The Outreach and Engagement Committee will continue to be led by Co-Chairs Dr. Jin Zhou and Dr. Qing Yang, and the Webinar Sub-Committee continue to

be led by Co-chais Dr. Jun Zhao and Dr. Qing Yang. In addition, many committee members have finished their terms, many will continue to serve, and many will join in 2025. There are just too many to name! ICSA is also fortunate to have two leading statistical journals with dedicated and experienced editors: Dr. Yi-Hau Chen, Dr. John Stufken, and Dr. Huixia (Judy) Wang for Statistica Sinica, and Dr. Margaret Gamalo and Dr. Jianguo (Tony) Sun for Statistics in Biosciences. We are also fortunate to have Dr. Chixiang Chen edit the ICSA Bulletin and Dr. Grace Yong edit the ICSA monthly newsletter.

With the rapid development of AI and other uncertainties, we face many challenges in our profession and identity. With the influx of large and complex data, there is an ever-increasing need to sift through the data deluge to develop rigorous tools and methods to separate signals from noises, advance science and business developments, make trustworthy inferences, and inform policies that have large societal impacts. Our roles as a profession will only grow, instead of diminishing, in this uncertain world.

It is the shared visions, goals, and interests that bring all of us together. Please email me at `hongyu.zhao@yale.edu` or ICSA Executive Committee at `executive.director@icsa.org` if you have any suggestions to make our society a more welcoming and supportive home for everyone! I look forward to working with the Executive Committee (with Past President Dr. Xun Chen, President-Elect Dr. Rong Chen, Executive Director Dr. Jun Zhao, and Treasurer Dr. Xin He), Board of Directors, Committees, and all of you to advance the mission of ICSA. Wish you all a brilliant 2025!

Hongyu Zhao, Ph.D.
2025 ICSA President,
Ira V. Hiscock Professor of Biostatistics,
Yale University.

From the 2024 President, ICSA

Xun Chen

Dear ICSA Members and Friends,

Happy 2025!

At first, I would like to express my gratitude for your unwavering dedication and supports to ICSA in the past year. Following an active start in 2024, ICSA successfully maintained its momentum throughout the year. Highlights after the summer included, but were not limited to, a highly successful ICSA conference in China (June 28-30, 2024, Wuhan, China) and a particularly engaging annual celebration at JSM in Portland on August 7th, 2024, Portland.

In October, ICSA appointed Dr. Meg Gamalo as the co-Editor of Statistics in Biosciences (SiBS) for the term of 2025-2027. Bringing valuable leadership experience in the FDA and pharmaceutical industry, Dr. Gamalo will collaborate closely with Prof. Sun, to enhance the visibility and influence of SiBS across academia, industry, and government. Additionally, in December, the ICSA Board of Directors approved the establishment of a new award, the "Catalyst for Impact Award" . Effective from 2025, this award will join many other initiatives under ICSA to continually bolster its commitment to promoting innovative statistical research and applications in practice.

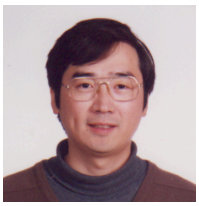
I am also pleased to welcome Prof. Hongyu Zhao as the ICSA President for 2025, along with Prof. Rong Chen as the ICSA President-elect. I am confident that under this new leadership team, ICSA will continue to uphold and advance its esteemed legacy. As we say thank you and goodbye to Prof. Gang Li, ICSA President in 2023, Prof. Rui Feng, ICSA Treasurer from 2022 to 2024, and many other leaders, including myself, who are gradually moving into the backstage of ICSA leadership, I am certain that our connections and contributions to ICSA and the statistical community will endure. With the efforts and support of all ICSA members, I am confident that ICSA will thrive and further achieve its mission in 2025.

Thank you so much and wishing everyone a joyful, healthy, and prosperous 2025!

Xun Chen, Ph.D.
2024 ICSA President,
Global Head of Biostatistics and Programing,
Sanofi.

From the 2025 President-Elect, ICSA

Rong Chen



Dear ICSA Members,

It is a great honor to be elected as the 2025 ICSA president-elect. Through my many years of participation and services in ICSA, I have witnessed the strong growth of our beloved society. It provides indispensable intellectual services to our members through its top-ranked journal Statistica Sinica, its applied biomedical focused journal Statistics in BioSciences, and its many excellent symposiums and conferences. It also provides a platform for social bonding of our members through its annual banquets, the publication of ICSA Bulletin, and other activities. I am proud of being an ICSA member and willing to serve the society more.

I wish to thank you for your trust and your continued support of our society. I will work closely and learn from the great leadership teams of ICSA, and serve the society to the best of my ability. I will make every effort to raise the standing of the ICSA and to attract fresh talents to keep ICSA vibrant and dynamic. Wish everyone a joyful, healthy, and prosperous 2025!

Rong Chen, Ph.D.
2025 President-elect,
Distinguished Professor of Statistics,
Rutgers University.

From the Executive Director 2023-2025

Jun Zhao

Dear ICSA members and friends,

Happy New Year. Wish you and your family have a healthy, successful, and prosperous 2025. Wish ICSA continues to improve and excel in all areas, creating a better and more fulfilling experience for everyone within the organization.

The ICSA is a nonprofit, US based, non-government organization. It can be characterized as a global statistical professional society with members from around the world. It provides a platform to exchange knowledge, research and leadership in statistics and data science.

Led by the ICSA presidents and the leadership team, the past year represented a great progress, expansion, and improvement of the association. The ICSA concluded the 2024 with significant contributions on the cutting-edge scientific research from members, with great involvement in the era of artificial intelligence and data sciences, and initiatives and projects to strengthen, improving and promoting the association.

The ICSA achieves its goals through many volunteer works done by ICSA members, including board members, committee members, and many individual members. Their volunteer work and contribution are fully appreciated by all the ICSA members. Here, on behalf of the Executive Committee, I want to express our sincerely thanks to all the support you have given to our association and the statistical society.

As a professional association, ICSA organizes, sponsors, and co-sponsors many conferences and events every year. You may have attended the 2024 ICSA Statistics Symposium in Nashville, TN, the 2024 ICSA China Conference in Wuhan, China, the 2024 International Conference for Statistical and Data Science in Taiwan, or many other ICSA sponsored/co-sponsored conferences or events. Many of the attendees have expressed their gratitude to the conference/event organizers and volunteers, who made significant effort, dedication, and contributions to promote statistical science and the ICSA. During 2024, ICSA achieved its objectives. In addition, the ICSA made multiple initiatives. The following are worth mentioning,

among others.

The Webinar/Webinar Series were launched in the beginning of the 2024 and attracted many audiences and many provided very positive feedback. The Webinar committee is expanding and considering more topics and welcomes volunteers to join the team.

Multiple social events were organized by the Outreach and Engagement Committee and local organizers. The events are the addition to the scientific activities organized by the organization. Hope more and more ICSA members and friends can benefit and participate in those social events.

A new ICSA Award category, named "Catalyst for Impact Award" , is introduced to recognize industry/applied statisticians for their contribution to the society.

Thanks to the ICSA board of directors, the policy maker arm of the association, to dedicate your time and energy to the association. Thanks to all the committee chairs and task force leaders who lead their committees and workstreams, to make the association smoothly functioning and more attractive. Thanks to all the publication editors to make the Journals, books, and newsletters, with high quality. Their dedication and contribution to the association are well recognized. And the last but not the least, thanks to all the members who voiced meaningful suggestions and provided ideas to optimize policy and operational work.

In the Year of 2025, we will continue to enhance and improve. Some new initiatives are planned to be introduced, e.g., a mentor/mentee program, a new type of co-sponsorship, and local social events. Let's work together to make the ICSA stronger and better.

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

ICSA 2025 Core Members

EXECUTIVES:

- President: Hongyu Zhao (hongyu.zhao@yale.edu)
- Past-President: Xun Chen (xun.chen@sanofi.com)
- President-Elect: Rong Chen (rongchen@stat.rutgers.edu)
- Executive Director: Jun Zhao (2023-2025, executive.director@icsa.org)
- ICSA Treasurer: Xin He (2025-2027, treasurer@icsa.org)
- The ICSA Office Manager: Grace Ying Li (oicsa@icsa.org)

COMMITTEES:

Program Committee:

- Chair: Qingxia Chen (cindy.chen@vanderbilt.edu)

Nominating and Election Committee:

- Chair: Hongjian Zhu (hongjian.zhu@abbvie.com)

Membership Committee

- Chair: Tiejun Tong (tongt@hkbu.edu.hk)

Awards Committee:

- Chair: Yong Chen (ychen123@pennmedicine.upenn.edu)

Special Lecture Committee(coordinate keynote speaker):

- Chair: Hongzhe Lee (hongzhe@pennmedicine.upenn.edu)

Publication Committee:

- Chair: Runze Li (rzli@psu.edu)

ICSA Outreach and Engagement Committee :

- Co-Chair: Jin Zhou (jinjinzhou@g.ucla.edu)
  Qing Yang (qing.yang@duke.edu)

Finance Committee:

- Chair: Xin He (treasurer@icsa.org)

Financial Advisory Committee:

- Chair: Xiangqin Cui(xiangqin.cui@emory.edu)

IT Committee:

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

Archive Committee:

- Chair: Jun Yan (jun.yan@uconn.edu)

Newsletter Editor

- Grace Li (li_ying_grace@lilly.com)

Bulletin Editor

- Chixiang Chen (chixiang.chen@som.umaryland.edu)

Call for Nominations of Candidates for 2026 ICSA Officers

Due by April 1, 2025

The ICSA 2025 Nomination and Election Committee is seeking for nominations of candidates for ICSA 2026 officers: ICSA President-Elect 2026 and ICSA Board of Directors (2026-2028). The committee plans to identify two candidates for the ICSA President-Elect 2026 and 15 candidates for ICSA Board of Directors (2026-2028) for general election. Candidates for all positions need to be active ICSA members in 2024 and 2025 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. The candidates for President-elect 2026 will be from non-academia. 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/8ujXMqiuK11bZB2P9` by April 1, 2025. You may contact Dr. Hongjian Zhu at `hongjian.zhu@abbvie.com` if you have any questions.

Call for Nominations for 2025 ICSA Awards

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

The ICSA award committee is now officially accepting nominations for various categories. We strongly encourage submissions from diverse backgrounds and populations. Nomination materials should be forwarded to the Award Committee Chair, Dr. Yong Chen, via email to `ychen123@pennmedicine.upenn.edu` with a subject line specifying the relevant category followed by "Nomination". Each award category has specific requirements regarding eligibility and the nomination process, detailed under each award category below.

Nomination documents must be submitted as PDF, PS, or plain text attachments. Please note that the deadline for all nominations, including those for the Pao-Lu Hsu Award, is March 1, 2025.

Catalyst for Impact Award

The ICSA Catalyst for Impact Award Award is presented to individual(s) "In recognition of the distinguished statistical contribution and achievement in the industry and regulatory agencies and unselfish support of the association".

Eligibility: Nominees must be ICSA members for at least the past year. Members of the Award Committee and the Executive Committee are not eligible to receive the award during the term of service.

Nomination Process: The nomination package shall be sent to the Award Committee Chair of the year with the subject entitled "Catalyst for Impact Award Nomination". 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 on impact on innovation, community engagement, and mentoring and developing the next generation of statisticians.

Additional nomination materials such as recommendation letters are encouraged but not required. Send the nomination materials to Award Committee Chair, Yong Chen, via email to `ychen123@pennmedicine.upenn.edu` with the

subject entitled "Catalyst for Impact Award Nomination".

Deadline: The deadline for nomination is March 1, 2025.

Diversity: Nominations from diverse populations and backgrounds are encouraged.

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 materials such as recommendation letters are encouraged but not required. Please send the nomination materials to Award Committee Chair, Yong Chen, via email to `ychen123@pennmedicine.upenn.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 March 1, 2025.

Diversity: Nominations from diverse populations and backgrounds are encouraged.

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 degree in the past six years. For example, an individual eligible for 2025 must have received a doctoral degree dated 2019 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, Yong Chen, via email to `ychen123@pennmedicine.upenn.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 March 1, 2025.

Diversity: Nominations from diverse populations and backgrounds are encouraged.

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, Yong Chen, via email to `ychen123@pennmedicine.upenn.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 March 1, 2025.

Diversity: Nominations from diverse populations and backgrounds are encouraged.

Pao-Lu Hsu Award

The Pao-Lu Hsu Award is presented every three years by the International Chinese Statistical Association (ICSA), usually at an ICSA conference, to an individual under age 50, who makes influential and fundamental contributions to any field of statistics and probability, and exemplifies Hsu's deep involvement in developing statistics and probability research with significant impact on education, as noted at the ICSA website: `https://www.icsa.org/awards/pao-lu-hsu-award/`. Professor Hsu, born in 1910, was a pioneer and founder of the newly formed discipline of statistics and probability in China. He was best known for his rigorous research with depth and breadth, and for his profound impact on younger generations. He became the first professor of statistics and probability, Peking University, in 1940. In 1948, he was elected to the very first class of Academicians of the Chinese Academy of Sciences. He published about 40 articles; see "Pao-Lu Hsu Memorial Collection" published by Peking University Press for more details.

Eligibility: The prize is open to all nationalities, member or non-member of ICSA. Priorities are given to the candidates whose work contributes greatly to the research and education of Chinese statisticians. The award recipient will speak at an ICSA International Conference. The award includes $3000 (US dollars) in cash prize.

Nomination Process: Please send the following materials to Award Committee Chair, Yong Chen, via email to `ychen123@pennmedicine.upenn.edu` with the subject entitled "PL Hsu Award Nomination". Items below can be sent as pdf, ps or plain text attachments.

(A) Nomination letter which include the following information: nominator's name, mail/email address and phone number; nominee's name, date of birth, title, institutional affiliation, and contact information; a summary of the supportive evidences that are the basis for the nomination. The length of the nomination letter should not exceed 3 pages.

(B) Nominee's current CV.

(C) Three letters of recommendation.

Deadline: The deadline for nomination is March 1, 2025.

Diversity: Nominations from diverse populations and backgrounds are encouraged.

New Award Category

Approved by the ICSA board of directors, a new ICSA award, named "Catalyst for Impact Award", is established for applied/industry statisticians. The evaluation criteria for Statistical Contribution and Achievement in the Industry have been drafted and are ready for finalization.

Impact on Innovation

- Advancement and application of statistical methods that are recognized by both the industry and regulatory agencies.
- Recognition through: Impact of publications and citations, and Receipt of awards and fellowships.

Community Engagement

- Demonstrating leadership through active engagement within the broader community.
- Commitment to driving positive change beyond organizational boundaries.
- Promotion of statistics as a discipline, highlighting its significant impact and influence.

Mentoring and Developing the Next Generation of Statisticians

- Dedication to the professional growth of emerging statisticians.
- Providing guidance and sharing knowledge with the next generation.
- Creating opportunities for young professionals to grow and succeed in their careers.

ICSA Financial Report

International Chinese Statistical Association
Profit and Loss
July 1, 2024 through Dec 31, 2024

Beginning Cash Balance (Bank/Symposium/Paypal accounts)	**7/1/2024**	**$ 431,445.10**
Income:		
Membership		$ 13,540.00
2024 Donations		$ 40,980.00
2024 JSM Event Regitration Fees		$ 7,253.21
Springer Science &Taylor Franc		$ 3,052.77
Job Posting		$ 1,342.50
Interest		$ 40.90
Total Income		**$ 66,209.38**
Expense:		
ICSA Office Cost		$ (11,783.30)
2024 ICSA Applied Symposium Expenses		$ (175,122.35)
2024 China Conference Expense		$ (16,232.01)
2024 Short Course or Speaker Honorarium		$ (5,333.33)
2025 ICSA Symposium WHOVA		$ (4,399.00)
2024 JSM Event Cost		$ (22,039.80)
IT Cost		$ (10,188.99)
Paypal Fee		$ (349.26)
Total Expense		**$ (245,448.04)**
Net Total Income		**$ (179,238.66)**
Fee adjustment (IMS Membership hold)		$ 211.90
Ending Cash Balance (Bank/Symposium/Paypal accounts)	**12/31/2024**	**$ 252,418.34**
ASSETS		
JPHsu		$ 32,699.87
Bank/PayPal		$ 252,418.34
Vanguard Investment Balance		$ 1,465,219.16
TOTAL ASSETS		**$ 1,750,337.37**
LIABILITIES & EQUITY		
Equity		
Main Accounts Opening Balance July 1, 2024		**$ 426,745.10**
Jan 1 to June 30, 2024 Net Income(+)/Expense(-)		*$ (179,026.76)*
2018 Symposium Bank Accounts Opening Balance July 1, 2024		*$ 4,700.00*
For JP Hsu Account Openning July 1, 2024		*$ 30,246.47*
Jan 1 to June 30, 2024 Investment Income(+)/Expense(-)		*$ 2,453.40*
Vanguard investment account opening balance on July 1, 2024		$ 1,408,710.15
Jan 1 to June 30, 2024 Investment Profit(+)/Loss(-)		*$ 56,509.01*
Total Equity		**$ 1,750,337.37**
TOTAL LIABILITIES & EQUITY		**$ 1,750,337.37**

Rui Feng, PhD,
Treasurer, ICSA,
Associate Professor of Biostatistics,
University of Pennsylvania.

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. This book series has successfully published twenty-night (29) books in statistics, biostatistics, bioinformatics, biopharmaceutical biostatistics, data sciences, and public health, as listed online at `https://www.springer.com/series/13402`.
Four books were published in 2024:

- Modeling Binary Correlated Responses: Using SAS, SPSS, R and STATA (Authors: Jeffrey R. Wilson, Kent A. Loren, and Lori P. Selby);
- Innovative Designs and Analyses for Small Population Clinical Trials: Development Strategies and Operational Engagement for Pediatric and Rare Diseases (Authors: Jingjing Ye and Lei Nie);
- Statistics in Precision Health: Theory, Methods and Applications (Authors: Yichuan Zhao and Ding-Geng Chen);
- Dose Finding and Beyond in Biopharmaceutical Development (Authors: Jingjing Ye, Ding-Geng Chen, Wen Zhou, Qiqi Deng, Joseph C. Cappelleri).

The ICSA Book Series in Statistics aims 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 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 in Biostatistics,
College of Health Solutions,
Arizona State University,
Phoenix, AZ , USA.

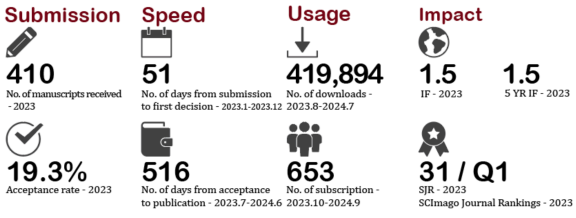
Report from Statistica Sinica Co-Editors

Yi-Hau Chen, John Stufken, Huixia (Judy) Wang, Runze Li

In 2023, Statistica Sinica receives 410 original submissions (revised, resubmitted papers not included). The total number of original submissions is higher than that in 2022. About 8% of the papers submitted in 2023 have not yet reached their final results. Acceptance rates are shown in Table 1 below.

Currently we have a huge backlog of accepted papers. Up to 2024.7.2, there are 197 accepted papers (Vol.34 No.4 Vol.36 No.4) in the backlog, including 7 papers for special issue "Data Privacy", and 7 papers for special issue "Network Data Analysis". There are around 9 regular issues and 2 special issues in the backlog. Vol.34 No.4 will be published in October this year, and Vol.36 No.4 will be published in October, 2026. All accepted articles are posted online immediately after acceptance on Statistica Sinica' s official website as the just accepted author version in the section of "Future Papers".

The journal's two-year impact factor continues to rise in the recent 5 years. In 2023, it reaches up to 1.5, which is a little higher than that in 2022 (1.4). Its five-year IF in 2023 is 1.5, which is also a little higher than that in 2022 (1.4). For SCImago Journal Rankings, it rose from 42 in 2022 to 31 in 2023. For the past year (Vol.33 No.3-Vol.34 No.2), the number of average days from acceptance to publication is 516 days. The following illustration shows its journal metrics:



1. Submissions and Acceptance Statistics

Table 1 shows the number of submissions and the acceptance rates from 2019 to 2023. Table 2 shows the number of submissions by country from 2021 to 2023. And Table 3 aims to present countries with accepted papers for the recent 3 years.

Table 1. Number of Submissions and Acceptance Rate from 2019 to 2023

	Jan 1, 2019 – Dec 31, 2019	Jan 1, 2020 – Dec 31, 2020	Jan 1, 2021 – Dec 31, 2021	Jan 1, 2022 – Dec 31, 2022	Jan 1, 2023 – Dec 31, 2023
Accept	78	126	125	150	79
Number of Submission	408 (482^{ID}-$33^{w/w}$-41^{re})	452 (524^{ID}-$43^{w/w}$-29^{re})	403 (455^{ID}-$30^{w/w}$-22^{re})	387 (419^{ID}-$20^{w/w}$-12^{re})	410 (435^{ID}-$13^{w/w}$-12^{re})
Acceptance rate	19.1%	27.9%	31%	38.8%	19.3%

*Data updated on August 6, 2024.

*About 8% of the papers submitted in 2023 haven't reached their final results.

* ^{ID} means the number of paper IDs obtained in a year. For example, in 2023, the submitted paper IDs range from SS-2023-0001 to SS-2023-0435. So in 2023, the number of paper IDs is 435, which includes the original submitted papers, unsubmitted or withdrawn papers, and the resubmitted papers.

* $^{w/w}$ means the unsubmitted or withdrawn papers.

* ^{re} means the resubmitted papers.

Table 2. Top ten countries with the highest submissions from 2021 to 2023

Rank	Jan 1, 2021– Dec 31, 2021		Jan 1, 2022– Dec 31, 2022		Jan 1, 2023– Dec 31, 2023	
1	USA	216 (35%)	China	203 (34.2%)	China	252 (39.9%)
2	China	168 (27.1%)	USA	191 (32.3%)	USA	176 (27.8%)
3	Canada	36 (5.8%)	Taiwan	27 (4.6%)	Hong Kong	24 (3.8%)
4	Hong Kong	28 (4.5%)	Canada	25 (4.2%)	Canada	20 (3.2%)
5	Taiwan	21 (3.4%)	Hong Kong	20 (3.4%)	India	17 (2.7%)
6	Italy	16 (2.6%)	Japan	15 (2.5%)	Japan	12 (1.9%)
7	Japan	10 (1.6%)	Australia	11 (1.9%)	Pakistan	10 (1.6%)
8	Australia/ Brazil/ United Kingdom	9 (1.5%)	Italy	10 (1.7%)	Iran/ United Kingdom	9 (1.4%)
9	Germany/ Singapore	8 (1.3%)	United Kingdom	9 (1.5%)	Germany/ Italy/ Singapore/ Taiwan	8 (1.3%)
10	India/ Iran/ Pakistan	7 (1.1%)	Kenya	8 (1.4%)	Australia	7 (1.1%)

Table 3. Countries with accepted papers for the recent 3 years

Year 2021		Year 2022		Year 2023	
Country	Number of accepted papers	Country	Number of accepted papers	Country	Number of accepted papers
United States	55	United States	54	China	52
China	30	China	29	United States	45
Hong Kong	10	Taiwan	7	Hong Kong	7
Canada	7	Canada	5	Canada	4
Australia	3	Australia	4	Taiwan	4
Chile	3	Italy	3	Australia	3
Japan	3	Japan	3	Germany	3
Belgium	2	Hong Kong	2	United Kingdom	3
Germany	2	United Kingdom	2	India	2
Italy	2	Denmark	1	Italy	2
Singapore	2	Germany	1	Japan	2
Argentina	1	Korea	1	Belgium	1
France	1	Netherlands	1	France	1
Ireland	1	Saudi Arabia	1	Israel	1
Taiwan	1	Singapore	1	Korea	1
		Spain	1	Netherlands	1
		Switzerland	1	Saudi Arabia	1
				Spain	1

2. Manuscript Processing Time

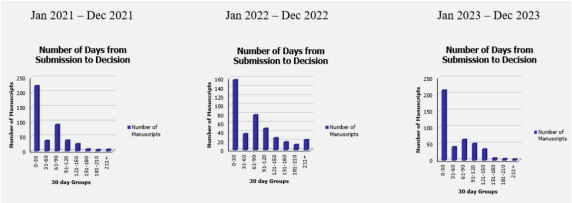
Table 4 shows the turnaround statistics of initial decisions from 2021 to 2023, with the decision times censored on June 4, 2024. About 50% of the editorial decisions during 2023 take less than 28

days, but 5% take over 141.2 days. From 2021 to 2023, the average reviewing time ranges from 51 days to 74 days. From Table 5, it can be seen that a large percentage of papers get the initial reviewing decisions within 30 days.

Table 4. Percentiles of review time in days from 2021 to 2023

Period	5th	25th	50th	75th	95th	Average Review Days
Jan 2021 – Dec 2021	5	9.75	25	79	142.6	51
Jan 2022 – Dec 2022	3	9.25	62.5	107	232	74
Jan 2023 – Dec 2023	1	5	28	87	141.2	51

Table 5. Comparison of review time in days from 2021 to 2023 (with 30 days group)



3. Rankings and Impact Factors

Table 6 shows the ranks of Statistica Sinica based on the 2-Year Impact Factor and the 5-Year Impact Factor provided by the Journal Citation Reports (JCR) in the area of Statistics and Probability from 2014 to 2023. Table 7 shows the ranks of Statistica Sinica in Scimago Journal Rankings among all journals of Statistics and Probability in the Scopus database from 2014-2023. The ranking is performed using the algorithm Google PageRank. And Table 8 presents total citations for the recent five years.

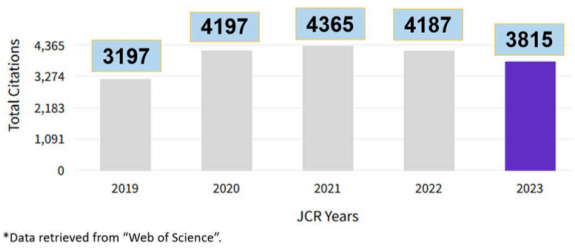
Table 6. JCR rankings for the recent 10 years

Year	Number of Journals	Ranking (2-Year Impact Factor)		Ranking (5-Year Impact Factor)	
2023	168	43	(1.5)	65	(1.5)
2022	125	64	(1.4)	69	(1.4)
2021	125	78	(1.330)	70	(1.481)
2020	125	76	(1.261)	64	(1.647)
2019	124	72	(0.968)	67	(1.230)
2018	123	71	(0.947)	66	(1.256)
2017	123	71	(0.886)	51	(1.399)
2016	124	70	(0.899)	46	(1.632)
2015	123	66	(0.838)	42	(1.611)
2014	122	44	(1.158)	36	(1.591)

Table 7. SCImago journal rankings for the recent 10 years

Year	Total Number of Journal	Journal Rank	Quartile
2023	268	31	Q1
2022	258	42	Q1
2021	250	45	Q1
2020	257	50	Q1
2019	246	41	Q1
2018	219	41	Q1
2017	196	23	Q1
2016	183	26	Q1
2015	179	20	Q1
2014	179	14	Q1

Table 8. Total citations for the recent 5 years



*Data retrieved from "Web of Science".

4. Special Issues

Special issues are published as online-only issues. In 2023, we published four regular issues and one special issue (High-Dimensional Statistics) containing 118 articles in total. In April 2024, the special issue, "Sequential Monte Carlo" was published, with nine articles included. Currently, there are still two special issues under reviewing process: "Data Privacy" and "Network Data Analysis". Totally, 24 papers had been submitted for the two special issues, which are scheduled to be published in 2025. Table 9 provides a quick overview of the special issues for the recent five years.

Table 9. Special issues for the recent five years

Year	2021	2022		2023	2024	2025+	
Subject	In Honor of Prof. Tze Leung Lai	Causal Inference and Short Notes	Sliced Inverse Regression After 30 Years, In Honor of Prof. Ker-Chau Li	High-dimensional Statistics	Sequential Monte Carlo	Data Privacy	Network Data Analysis
No. of Papers published	9	8	10	29	9	7+	7+
Status	published	published	published	Published in May 2023	Published in April 2024	Scheduled to appear in January, 2025	Scheduled to appear in July, 2025

5. Publication statistics (2020 2024)

The following two tables show the number of papers published per year and per issue respectively for the recent five years.

Published articles amount (Per issue)

	JAN	Special issue	APR	Special issue	JUL	OCT	Special issue
Vol. 30 (2020)	24		25		23	22	
Vol. 31 (2021)	22		23		24	24	9
Vol. 32 (2022)	25	8	23		24	23	10
Vol. 33 (2023)	24		23	29	21	21	
Vol. 34 (2024)	24		24	9	24	To be published	

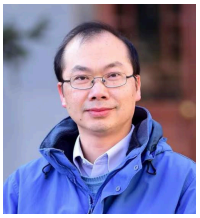
6. Call for Nomination: Co-editor of Statistica Sinica

The ICSA invites nominations for co-editors of Statistica Sinica. The editors will serve a three-year term, from 1 August 2026 through 31 July 2029, with the transition beginning in 2026. Nominations should be sent to Runze Li, the chair of Statistica Sinica co-Editor searching committee, via email `rzli@psu.edu` by 1 May 2025. Each nomination may include a nomination letter and the nominee' s CV. Interested individuals are encouraged to nominate themselves.

Yi-Hau Chen, Ph.D.,
Distinguished Research Fellow,
Institute of Statistical Science,
Academia Sinica, Taiwan.

John Stufken, Ph.D.,
Professor,
Department of Statistics,
George Mason University, VA, USA.

Huixia (Judy) Wang, PhD,
Chair and Professor,
Department of Statistics,
George Washington University, DC, USA.



Runze Li, PhD,
Eberly Family Chair Professor in Statistics,
Eberly College of Science,
Pennsylvania State University, PA, USA.

Report from Statistics in Biosciences (SIBS)

Hongkai Ji, Jianguo (Tony) Sun and Margaret (Meg) Gamalo

Statistics in Biosciences (SIBS) is one of the two statistical journals established by the International Chinese Statistical Association (ICSA). It publishes articles on the development and application of statistical methods, as well as their integration with other quantitative methods, such as computational and mathematical techniques, in the biological, life, health, biopharmaceutical, and biotechnological sciences. Published three times a year, the journal includes both regular articles and special issue papers dedicated to specific topics. For more information, please visit the journal' s website: `https://link.springer.com/journal/12561`.

In 2024, the journal published 41 articles across three issues, comprising two regular issues and one special issue. Historically, most articles in SIBS have been either Original Articles or Case Studies and Practice Articles. Recently, the journal has encouraged authors to contribute Review Articles and Commentaries on timely topics. Additionally, manuscripts describing new software tools and broadly useful computational or data resources are welcomed under the category of Case Studies and Practice Articles. We are delighted to observe an increase in submissions of these new types, exemplified by two Commentaries featured in the December 2024 issue.

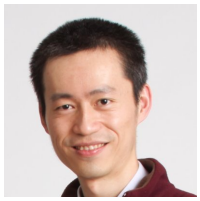
SIBS currently has three special issues in preparation:

- "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).
- "Special Memorial Issue for Professor Tze L. Lai" (Guest-editors: Dr. Ying Lu, Stanford University, Dr. Dylan Small, University of Pennsylvania, and Dr. Lu Tian, Stanford University).

We encourage ICSA members and colleagues to propose new special issues for SIBS.

On December 31, 2024, Dr. Hongkai Ji concluded three years of service as Editor-in-Chief. We are pleased to announce that Dr. Margaret (Meg) Gamalo has been appointed by the ICSA as the new Co-Editor-in-Chief, effective January 1, 2025.

The editorial team would like to extend our heartfelt gratitude to all authors, reviewers, readers, and editorial board members for their invaluable contributions and continued support. We look forward to collaborating with you to publish more impactful research in 2025.



Hongkai Ji, PhD,
Professor,
Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, USA.

Jianguo (Tony) Sun, PhD,
Professor and Director,
Department of Statistics,
University of Missouri. USA.

Margaret (Meg) Gamalo, PhD, FASA,
VP, Statistics Therapeutic Area Head,
Pfizer, USA.

News from the ICSA-Taiwan Chapter

Henry Horng-Shing Lu

The first International Conference for Statistics and Data Science (ICSDS 2023) was a collaborative effort between National Yang Ming Chiao Tung University, the Taiwan Chapter of the International Chinese Statistical Association, the Institute of Statistical Science at Academia Sinica, and the Chinese Institute of Probability and Statistics. Building on its success, the second ICSDS was held on July 9-10, 2024. It was hosted by Department of Statistics at National Chengchi University, the Institute of Statistics at NYCU, and the Taiwan Chapter of ICSA. The conference had international experts from the United States, China, Taiwan, Canada, the UK and Italy and others. It promised an agenda rich in keynote speeches and symposiums, covering diverse aspects of statistics and data science. The two-day event explored topics like Complex Data in Finance, Text Mining, Bioinformatics, Big Data, Industrial Statistics, Medical and Spatial Statistics, Clinical Trial Design, Time Series, Biostatistics, Actuarial Statistics, Machine Learning, Dimension Reduction, Sparse Modeling, Stochastic Processes, Bayesian Inference, and Nonparametric Statistics. Aimed at promoting the field of statistics, the ICSDS seeks to enhance international academic collaboration, create cooperative opportunities, and drive the progress and development of statistical sciences. This academic forum is expected to be a nexus for sharing innovative ideas, methodologies, and fostering advancements in statistics and data science. Please see the details in the conference webpage at `https://infostat.nccu.edu.tw/icsds2024/`.

The next conference will be the 2025 Joint Meeting of the Taipei International Statistical Symposium and the 13th ICSA International Conference, collectively known as Joint2025, which will take place in vibrant Taipei, Taiwan, from December 17 to 20, 2025. With the theme "The New Frontier: Statistical Science in a Changing World", this prestigious event will be co-organized by the Institute of Statistical Science, Academia Sinica (ISSAS) and the International Chinese Statistical Association (ICSA), in collaboration with the Chinese Institute of Probability and Statistics (CIPS). Please see the announcement in the conference webpage at `https://www3.stat.sinica.edu.tw/joint2025/`.

Henry Horng-Shing Lu, PhD,
Distinguished Professor,
Institute of Statistics,
National Yang Ming Chiao Tung University,
Hsinchu, Taiwan.

News from the ICSA-Midwest Chapter

Ziqian Geng

We co-organized the 2024 NIC-ASA & ICSA Midwest Chapter Joint Fall Meeting. The meeting was held on the campus of Astellas Pharma Global Development Inc. at Northbrook, IL, on October 10-11, 2024.

On Day 1, the meeting consisted of 2 short courses:

- Causal Inference and AI/ML in Pharmaceutical Statistics, given by Dr. Yixin Fang, Director and Research Fellow, MA&HTA Statistics, AbbVie Inc.
- Leveraging Real-World Data in Clinical Trials: Methods and Applications" , given by Dr. Bo Lu, Professor, Biostatistics, Ohio State University.

On Day 2, the meeting consisted of:

- A keynote speech, Consistency, Efficiency, Robustness: Statistical Principles to Guide Collaborative Culture, given by Dr. Denise

Scholtens, Chief of the Division of Biostatistics and Informatics and Director of Northwestern University Data Analysis and Coordinating Center.

- Seven scientific and professional development sessions.
- Two student focused events: poster exhibition and a student roundtable.

With the accumulated experience from 2024 and from previous years, we plan to continue the collaboration with NIC-ASA and co-organize the joint fall meeting in October 2025.

Ziqian Geng, Ph.D.,
Director and TA Lead in Gastroenterology, Statistics,
Abbvie, USA.

Speak with an Established Lab

Qi Long, Emily Getzen, Konstantinos (Kosta) Tsingas, Travyse Anthony Edwards

Column Description: the column offers labs an opportunity to share their experiences, including insights into research focus, mentorship, and lab management. These contributions aim to support principal investigators, particularly junior and mid-career researchers, as they build and lead their own scientific teams.

Interview with the Principal Investigator

Qi Long, Ph.D.,
Professor and Vice Chair,
Department of Biostatistics, Epidemiology and Informatics,
Perelman School of Medicine,
University of Pennsylvania, USA.

Question 1: Can you briefly describe the primary research focus of your lab and the specific problems in data science that you are currently addressing?

Answer: The current focus of our lab's research is to develop robust statistical and AI/ML methods towards the goal of advancing intelligent precision medicine, with keen interests in integrative analysis of rich, yet complex multi-modal health data such as multi-omics, electronic health records (EHRs), and imaging data. Our lab is particularly interested in advancing responsible AI and large language models (LLMs) by tackling issues related to fairness, explainability, and data privacy.

Question 2: What motivated you to establish your lab in the field of data science, and how has your research focus evolved over time?

Answer: I received my phd in biostatistics. Earlier in my career, my lab's research was focused on missing data and causal inference. In the past decade or so, vast amounts of data including, but not limited to, -omics, EHRs, mHealth and imaging data have been generated from research studies and as part of healthcare delivery as a result of rapid technology advancements. Such rich data offer great promises for advancing precision medicine and, at the same time, are fraught with biases and other issues, presenting daunting analytical challenges. To fully harness the power of such rich, yet complex data, our lab has sought to develop powerful statistical and AI/ML methods.

Question 3: How do you foster an innovative and collaborative environment in your lab that encourages new ideas and interdisciplinary research?

Answer: I have preached to my lab that a transdisciplinary team science approach is highly valuable or even imperative to tackle daunting analytical challenges in real world and exert real impact on addressing complex real world problems in medicine. To this end, teamwork is highly encouraged and valued in our lab, and lab members are encouraged to propose their own research ideas at our regular lab meetings. In addition, our lab collaborates extensively with researchers in computer science, clinical informatics, and biomedicine.

Question 4: What strategies do you use to mentor and support your lab members, especially junior researchers, in their career development?

Answer: I seek to create a diverse, supportive and rewarding environment for my lab members who bring complementary skills. Recognizing every trainee is different, I typically first aim to understand the strengths and career aspirations of each trainee and then tailor my mentoring for each trainee with a particular focus on helping them develop both technical and soft skills that will help them advance their careers long after they graduate. In addition to mentorship, I am also a firm believer of providing sponsorship to my trainees, i.e., helping them build professional networks and find leadership opportunities, and nominating them for awards etc.

Question 5: How do you integrate emerging technologies and methods in data science into your research and ensure that your lab stays at the forefront of the field?

Answer: Having a diverse research team is highly valuable in integrating emerging technologies and methods. Our lab has trainees in Biostatistics, Genomics and Computational Biology, Applied Mathematics and Computational Science, and Computer Science. This has enabled us to learn from each other. In my experience, the most effective strategy for staying at the forefront of the field is to identify high-impact real world use cases where robust data science methods are critical to their success and start working on research projects in these use cases. Through working on these projects, we learn the emerging technologies and methods and identify important analytical challenges that require development of novel methods.

Virtual Interview for Lab Members

Emily Getzen, Ph.D.,
Machine Learning Scientist,
Health, Apple Inc.

Biography: I am a Machine Learning Scientist focused on digital health at Apple. I recently finished my Biostatistics PhD at the University of Pennsylvania in 2024 advised by Dr. Qi Long. My goal is to build trustworthy and equitable data science and AI methods to make healthcare more accessible and give people more control over their outcomes.

Question 1: What attracted you to join this specific lab, and how did you go about selecting a research environment that aligned with your goals in data science?

Answer: In Qi's lab, there is a willingness to do research that pushes the boundaries of what traditionally defines a field. I was a Biostatistics student that was interested in doing AI research specifically applied to medicine from a statistical perspective. There were groups doing AI-adjacent research, but Qi was ready to dive into completely brand new topics. I felt that there was a great deal of innovation, excitement, and open-mindedness in the lab that allowed me to work on topics that I was really passionate about. Another factor that was important to me was the community aspect– I really wanted to work in an interdisciplinary lab with lots of members to learn from. Our lab members came from many different departments at Penn–Biostatistics, Bioinformatics, Computer Science, Applied Math and Computational Sciences, etc.

Question 2: Can you describe the most rewarding aspect of your work in this lab, and how it has helped you grow as a researcher?

Answer: The most rewarding aspect was getting to work on topics that I was excited about with amazing people that were similarly excited. Qi is very well connected with many different researchers at Penn, and it was so easy to start collaborations. I really enjoyed getting to work on important topics related to COVID-19, EHRs, and missing data. I really loved doing the work and getting to meet with Qi and my other collaborators each week to discuss the findings and what they mean from a big picture perspective, and how our results could help physicians. Since I started leading collaborations early in my career, and I got to regularly brainstorm with amazing collaborators every week, it made it easier to come up with research ideas and communicate them later on. It also helped me develop good strategies for writing papers and presenting at conferences.

Question 3: What strategies have you found effective for managing your time and balancing multiple research projects or responsibilities within the lab?

Answer: PhDs can be difficult because they are so unstructured. The best thing for me was finding ways to maintain some structure in my day. Having a to-do list helps, I find trello very useful for managing tasks. I think it's important to know yourself and build your tasks around times that you will be more productive. For me, I can do focused work like writing or coding in the morning and evening. In the afternoon, my focus slips so it's easier to send and respond to emails, schedule meetings, etc. Finally, maintaining boundaries. If you need a few extra days to get something done, just say so. It's important to take care of yourself (mental health, physical health, social health). I personally do my best work when I am doing what I need to do to care for myself.

Question 4: How do you approach communication and collaboration with your PI, lab colleagues, and other teams, and what have you learned about effective teamwork in a research environment?

Answer: I think it's very important to value others' perspectives. One of the best ways to learn is through being open to ways of thinking that are different from your own. It's also important to be honest about your abilities, bandwidth, and interests. Don't be afraid to ask questions or engage in interesting research discussions with your team! When I started, I was afraid to do this out of fear of looking like I don't know what I'm talking about. But once you get comfortable with the idea that there's so much information out there that you don't know, you can see it as an opportunity to learn something new and broaden your horizons.

Question 5: What challenges have you faced during your time in the lab, and what strategies did you use to overcome them, whether in research, mentorship, or project management?

Answer: Most of my challenges were in time management and working in an unstructured environment. My mental health struggled when I wasn't actively working to integrate structure into my day. One thing that helped a lot was actually going to campus and not doing everything at home. Trying to have in person meetings when I could (including with collaborators) made everything feel fresh and exciting, which helps a lot when it comes to having motivation to work on your research!

Question 6: What advice would you give to students or early-career researchers about succeeding in a data science lab and making the most of mentorship and research opportunities?

Answer: Absolutely find out what you are passionate about and pursue this. It is so much easier to find motivation to work on research, especially in an unstructured environment, when you have passion about what you are doing. It's also easier to write about it, talk about it at conferences, and convince people to work on it with you when you have genuine excitement about your topic. I truly believe that everything falls into place if you stay true to yourself in this way. In addition, be open to learning new things! You also may discover passions that you never realized you had as you progress through your journey. Finally, never be afraid to speak up or be honest. Don't worry about yourself so much and enjoy the ride! It's a unique time to be surrounded by interesting and creative people working on incredible research topics.

Virtual Interview for Lab Members

Konstantinos Tsingas, B.A. and M.S.,
2^{nd} year Ph.D. Student in Biostatistics,
University of Pennsylvania

Question 1: What attracted you to join this specific lab, and how did you go about selecting a research environment that aligned with your goals in data science?

Answer: My research background and interests lie in the statistical and AI-driven analysis of cancer -omics data to advance precision medicine. When I joined the Graduate Group in Epidemiology and Biostatistics at the University of Pennsylvania, I wanted to find an interdisciplinary lab where I could grow my skills in this domain and establish a holistic perspective on method development for biomedical research. Professor Long's lab exists at the interface of statistics, machine learning, and big health data analysis, and was the perfect environment to work toward this. The lab's focus on capturing both the theoretical and applied aspects of addressing complex problems in healthcare is exactly what I sought after for my training. Additionally, Professor Long fosters a research environment that is self-directed but also highly supportive and collaborative; from theoretical discussions to interfacing with clinicians, there are many opportunities to learn in the lab and surely a lot of potential to grow. This is a unique point of view on research that led me to join the lab initially and that I want to emulate in my future career.

Question 2: Can you describe the most rewarding aspect of your work in this lab, and how it has helped you grow as a researcher?

Answer: The most rewarding aspect from my work in Professor Long's lab has been the extensive collaboration with lab members and domain experts

to efficiently answer complex biological and clinical questions. I currently focus on developing robust methods for multi-omics and multi-modal integration, which is a coordinated effort. There are many trainees and senior investigators in the lab from a variety of fields, and the integrated nature of the research leads to interacting and working together with several of them. It was evident upon first joining the lab that collaboration is not only encouraged but also critical for investigating these intricate problems through a multifaceted lens. This has afforded me many learning opportunities spanning across multiple domains that I would not have had otherwise and avenues to share what I have learned through dedicated journal clubs and interactive discussions. The learning environment of the lab has exposed me to unique perspectives that are essential for conducting interdisciplinary research in data science.

Question 3: What advice would you give to students or early-career researchers about succeeding in a data science lab and making the most of mentorship and research opportunities?

Answer: Open communication is key to productivity in any research environment. While it's great to be able to say 'yes' to a new opportunity, knowing when to admit that you are spread too thin or overburdened is essential for maintaining steady progress, healthy research practices, and an honest mentor-mentee relationship. Learning when to say 'no' is a skill that comes with time and experience, and it is always good to think about the value of your time and when it is appropriate to dedicate it to a new research project or mentorship opportunity.

Virtual Interview for Lab Members

Travyse Anthony Edwards, B.A.,
2^{nd} year Ph.D. Student in Genomics and Computational Biology,
University of Pennsylvania

Question 1: What attracted you to join this specific lab, and how did you go about selecting a research environment that aligned with your goals in data science?

Answer: The experiences I have had in research have led me to prioritize mentorship fit as the most important factor when choosing a lab. A PhD is a long-term commitment that requires a strong and productive working relationship with a mentor that ideally understands and prioritizes the mentee's development. I entered my PhD program with a clear interest in the analysis of multi-modal health data and the exploration of algorithmic fairness. I became interested in joining Dr. Qi Long's lab due to his track record in the study of algorithmic fairness, development of robust machine learning methods, and experience in mentoring students with varied educational backgrounds. During my rotation with him, I confirmed that his mentorship style–where he expertly balanced guidance with the promotion of independence- closely aligned with my needs as a student and a mentee. I knew that joining his lab would allow me to thrive as a researcher.

Question 2: What strategies have you found effective for managing your time and balancing multiple research projects or responsibilities within the lab?

Answer: I use a combination of calendar reminders and to-do lists to balance multiple research projects effectively. I track conference deadlines, research presentation dates, and personal research goals in my calendar with appropriate reminders at regular intervals. For each research project, I outline my overarching goal into digestible, sequential tasks and track them in a to-do list app. Based on the deadlines kept in my calendar, I tag these research tasks according to three levels of priority: high, medium, and low. High priority refers to tasks with immediate deadlines that I can't afford to miss, while low refers to tasks without deadlines or that have deadlines more than a month into the future. I track the completion of these tasks weekly, which allows me to adjust my plans for circumstances where a research project doesn't work out as intended or requires a pivot. In such a situation, I revise the tasks at the start of the following week to address any of those concerns and proceed with the updated plan. This system helps me stay organized, ensures progress across all responsibilities, and helps me meet deadlines effectively.

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The Way I Came

Linbo Wang

Column Description: The new column provides valuable guidance and actionable examples for students and junior researchers pursuing careers in statistics, biostatistics, and data science. These articles are designed to inspire and inform the next generation of professionals in our field.

Linbo Wang, Ph.D.,
Associate Professor,
Canada Research Chair in Causal Machine Learning,
Department of Statistical Sciences,
University of Toronto, Canada

Introduction

I would like to begin this piece by commending the editors for creating this platform for junior and mid-career researchers to share their experiences. There have been many series featuring established researchers, both in and outside of statistics. Hearing from "big names" is undoubtedly inspiring, but as a junior researcher (at least not so long ago) with a background in statistics, I often wondered how much of this reflects selection bias. We rarely hear from people with similar experiences who didn't become famous. I certainly don't see myself as "successful" in the traditional sense often celebrated in such reflective articles. Nonetheless, I'm happy to share my journey, hoping to add more data points to the collective story of navigating an academic career.

Early Days: Finding a Research Path

I entered the field of causal inference during graduate school–a time when the area was far less popular than it is today. Before that, I explored several topics, including statistical genetics, survival analysis, and high-dimensional statistics. These were all exciting and fast-evolving fields, but I struggled to make meaningful contributions to them at the time. By my third year of graduate school, many of my peers had multiple publications (about half of my PhD cohort at UW Biostatistics are now still in academia).

Looking back, I was fortunate to choose an underexplored area – a decision I wouldn't have made if I'd been luckier with my research in the more popular directions at the time. This experience taught me the value of finding the right research path, which often requires patience and sometimes a bit of luck. I don't think pursuing "hot topics" is necessarily bad; it's more about aligning with a field where you can make a unique impact.

Building a Community

That was just the beginning. The first challenge I faced was that, being a relatively new area, there weren't many faculty members working in causal inference. My advisor, Xiao-Hua Zhou, and I started a working group in causal inference. I was unsure whether it would attract much interest, but it turned out to be one of the best initiatives of my graduate career. While there were not many faculty and students in the department who considered themselves specialists in causal inference, it became obvious that there was a lot of interest in this area. This interest, and even excitement, went beyond the biostatistics department, and we had regular attendees from the statistics department, Fred Hutchinson Cancer Center, and Group Health (now Kaiser Permanente).

This group had two major impacts on my graduate career. First, I got the feeling that causal inference seemed to be a promising area, with growing interest despite relatively few specialists. Second, it introduced me to prominent researchers, including Thomas Richardson, who became my co-supervisor and a key mentor. By the way, nowadays UW has become one of the leading centers for causal inference, with many established and rising researchers, and the working group continues to exist and thrive.

A Pivotal Project

Another turning point in my graduate career was a side project Thomas suggested on novel models for relative risk and risk difference [Richardson, Robins, and Wang, 2017]. This came during my fourth year in graduate school, when I had already completed three thesis projects. While I found those projects

more engaging than my earlier ones, my career aspirations at the time were still geared toward working in industry.

I've always tried to keep an open mind about career paths and rejected the idea that academia was the only legitimate outcome for a PhD. In fact, my ideal job back then was something like a position at Microsoft Research, where I could continue engaging in intellectually stimulating projects while ensuring they had real-world relevance – and, hopefully, earning a better salary. My academic prospects also seemed uncertain: none of my papers were even under revision. So I began searching for internships, and I still remember a recruiter who had moved from a tenured position to Amazon explaining how they earned three to five times their faculty salary. "In five or six years," they said, "you can earn the equivalent of an entire academic career – and that's another form of tenure." Out of curiosity, as I write this, I checked Amazon's stock price. Its stock price today (Jan 10, 2025) is 10 times what it was in 2015 when I met the recruiter. So the recruiter was actually right that I would probably be fine, at least much better off financially, if I had chosen a different career path.

But things changed, at least temporarily, when Thomas suggested the side project that was unrelated to my thesis. The basic idea of this project was that there are three commonly used measures of association between binary variables: relative risk, risk difference, and odds ratio. Of these, relative risk and risk difference are more intuitive, representing associations on the multiplicative and additive scales, respectively. Yet, odds ratio – a measure that is unintuitive and frequently misinterpreted– remains the default in practice because it is easily modeled using logistic regression. On the other hand, log-linear and linear models for binary outcomes are often dismissed as inappropriate because they fail to respect the constraint that the expected value of a binary random variable must fall between 0 and 1. This mismatch is what I've come to view as a "tail wagging the dog" situation: the choice of statistical model ends up dictating the parameter of interest, when in principle, it should be the opposite.

Thomas and Jamie Robins from Harvard had an idea for some new binary data models that can be used to model relative risks and risk differences but enjoy the nice statistical properties of logistic regressions. The basis of these new models is something called the odds product, a parameter that initially looks mysterious, but later, I came up with an explanation of how it can be derived naturally. (I have some slides on my personal website at `https://drive.google.com/file/d/0B5ZWuaEV5fq_clNDZHJ2TGYwNzA/view?resourcekey=0-2v3TZO6oAoZZidNkVzgqwQ`).

Long story short, the bottom line is that, at the time, I found this project very well-motivated, and the solution was also very creative and elegant. I was so excited about this project that I decided to postpone my plan to go into industry and do a postdoc with the goal of completing the project and exploring where it might lead.

Postdoc and Transition

The project also led to a postdoc offer from Jamie and, through him, Eric Tchetgen Tchetgen, who was then at Harvard. This turned out to be an important chapter in my career. On a tangible level, I worked on joint projects with both Jamie and Eric, and some of these were published just in time for the job market. I also managed to get several of my PhD papers published during this period.

However, the impact of my postdoc experience went far beyond publications. It gave me the opportunity to work closely with some of the world's leading experts in causal inference, expand my network of bright researchers (many of whom remain close collaborators and friends), and, crucially, develop the confidence to see myself as an expert in the field. While I was already quite versed in the language of causality thanks to my training at UW, my postdoc was when I began to "act as" an expert in causal inference–a shift that was both psychological and professional. This experience is one reason I often encourage my own students, especially those aiming for academic careers, to pursue a postdoc after graduation–even though some of them already have faculty positions lined up.

Joining Toronto: A New Chapter

The decision to join the University of Toronto as a faculty member was another key moment. Moving to a new country and adapting to a different academic system was daunting, but it turned out to be a great choice. My life as an assistant professor was much smoother than many of the counterfactual outcomes I could have had. Apart from family reasons, which played an important role in why I chose Toronto, there were also key professional

factors that made Toronto an excellent fit.

First, Toronto's statistics department was rapidly growing, with a strong foundation but relatively few colleagues specializing in causal inference. At the same time, there was a great deal of interest in this field, both within the department and from external collaborators. This dynamic reminded me of my early days at the University of Washington, where I found myself at the forefront of a promising area. Once again, this situation proved to be highly beneficial.

Being one of the few experts in causal inference at Toronto created unique opportunities for collaboration. For instance, I worked closely with Dehan Kong, an expert in neuroscience and functional data analysis. Despite his specialization in a different area, Dehan was open-minded and eager to explore new directions. Together, we supervised several students in causal inference. Another notable collaboration emerged with Zhenhua Lin, a UofT alumnus and expert in manifold analysis. Along with Dehan, we published the first study on causal inference for distribution functions and manifold analysis (Lin, Kong, and Wang, 2023 JRSS B) – a project that arose naturally from the interdisciplinary environment.

Equally importantly, Toronto attracted an incredibly talented pool of students, and I have been fortunate to work with highly creative and motivated students, some of whom initiated their own research topics, allowing me to guide rather than direct – a dynamic that has made my role as an advisor deeply rewarding. Their enthusiasm and ingenuity significantly lightened the challenges of starting an independent academic career.

Even with the disruptions caused by COVID-19, my early years as an assistant professor were far smoother than I could have anticipated. Finding the right environment, both in terms of professional opportunities and supportive colleagues, made all the difference.

Final Reflections

My journey so far has taught me the importance of finding the right environment, being adaptable, and recognizing opportunities in unexpected places. For those charting their own paths, I hope my experiences add a meaningful data point to the broader narrative of academic careers.

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

Xiao-Li Meng

Editorial: This is a reprint from a column article published in the *IMS* ; `https://imstat.org/2024/12/15/xl-files-seeking-simplicity-in-statistics-and-complexity-in-wine-part-1/`) with IMS' permission. Xiao-Li Meng chats some more about how to apply statistics to wine, following his XL-Files in the November 2024 issue

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

Wine and Statistics?

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

How could I have said no to such an inspiration, especially when I had just acquired half of a wine club's inventory through a liquidation sale? As a pure academic, I was not then and am not now commonly given the resources or opportunity to acquire any fraction of any wine club' s inventory, if the club owner took some statistics courses and understood the risk of running a business. But a club' s loss is an academic' s gain, the latter of which was increased by the wine club salesman' s appreciation of my curiosity about everything wine. "I' d rather give all the remaining bottles to someone who appreciates wine for two dollars a bottle, than have them confiscated tomorrow," he remarked. It was a subzero evening, but the salesman' s resentment of some prospective almighty confiscator added a couple of real zeros to my wine budget. It' s unclear if the "two dollars a bottle"qualification was his offer or valuation of my appreciation level. But either way, I joined or rather, closed the club, in a serendipitous turn of events for a wine-connoisseur-wannabe that ultimately became a singularity for a stat-pedagogue would-be.

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

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

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

Retrospectively, my laughable attempt could

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

I, of course, would not do the same to my students. Wee Lee' s inspiration ultimately led to a General Education course at Harvard: *Real-Life Statistics: Your Chance for Happiness (or Misery).* (As a considerate professor, I always give my students' choices to accommodate their preferences.) Traditional intro-level statistical courses arrange the content by mathematical and statistical difficulty and bring in stylized examples to illustrate how to apply formulas and carry out computation. The "Happy Course" breaks with this longstanding, common practice, literally and figuratively. The course offered six modules–Romance, Finance, Medical, Election, Legal, and Wine and Chocolate–made possible by my "Happy Team," a group of graduate students who worked (e.g., dined and wined) with me to develop and deploy the Happy Course. Many pedagogical ideas were fermented over equally many bottles and reified through experiments conducted over several years. Statistical ideas and methods are brought in only when they are needed to address real problems. (In case you want to be amused by "unreal" problems in some stat textbooks, imagine a shoe store owner interested in knowing only the *average shoe size the store carries.*) This led to the ordering and presentation of technical materials that were unacceptable in the traditional framework.

For example, to understand how "romantic regression"–a Freudian slippery term as romance rarely can escape from its slippery regressing slope is employed by online dating sites to find your soulmate, the Happy Course introduced logistic regression, used to predict match versus no match, before linear regression. Linear regression is almost always taught before logistic regression in statistics because mathematically the straight lines are easier to teach and understand than the non-linear logistic curves. The concept of linear regressions is used extensively in finance, among many subjects. For example, the notion of high alpha and low beta stocks is built on the intercept (alpha, a measure of return) and slope (beta, a measure of risk) of a linear regression. Seekers of romance may indeed need to learn about linear regression first because money can help to prolong a romance even if it cannot buy one. But the argument that finance must come before romance, because of the mathematical ordering from line to curve, would hardly spark any interest, let alone love, from those students who fear anything mathematical in the first place.

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

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

Wine Tasting and Testing

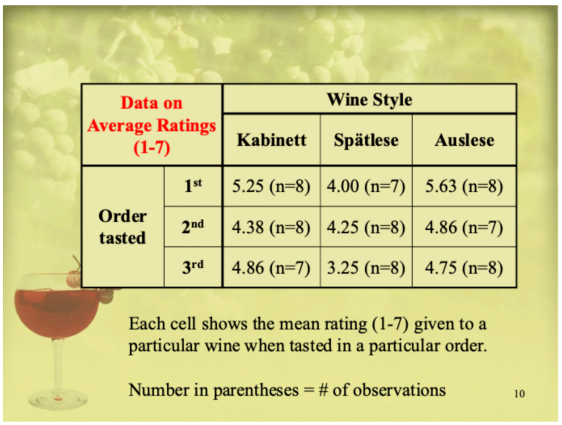
Wine tasting provides a pedagogically engaging activity to demonstrate the essences and importance of experimental design, a gold standard for making causal conclusions, from clinical trials for treatment efficacy to safety assessments of autonomous vehicles. The myriad of factors influencing wine quality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

As it happened, the half club I inherited consisted of mostly German Riesling, with every possible level of sweetness, from Kabinett to Trockenbeerenauslese. Common wisdom has it that Riesling tends to be the favorite for newbies to wine, or at least the most easily accepted because of its pleasing sweetness. Having introduced several colleagues and friends to the world of wine,

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

The principle of randomization, however, might be less obvious because many people equate randomness with haphazardness. In experimental designs–and in all statistical theory and methods–randomization is the opposite of a haphazard process because randomization means the process is under human control and we know precisely what can happen and how frequently it happens. A typical randomization requires that everyone, or every possibility, be given an equal chance. For comparing different wines, the order of tasting can influence our judgment. ("Never serve your trophy as the third bottle" was a piece of advice given to me last century over a most memorable lunch, but perhaps not to the host, who ultimately thought his office was his bedroom). A well-designed tasting experiment therefore will assign approximately the same number of tasters to every possible order. In the Happy Course' s Riesling tasting, we served three kinds of wine (with all bottles wrapped), resulting in six possible orderings. We had 23 tasters, and hence each order was given to four tasters except for one – see the accompanying photo and slide (below). (It is probably a good test to see if you need another glass: can you immediately tell which order was the exception?)

The slide was from the actual lecture, where the table documented the average rating for any wine-order combination. I' m not showing the rest of (many) slides, which would easily be your reading terminator. But if your glass still is half full, I' d invite you to pair the half glass with a half number game: What can I conclude from these numbers? Let's see. Looks like there is an ordering effect, since the two highest average ratings all occurred in the first row. But then the second lowest average rating also occurred in the first row. Wait. The whole Spatlese column received the three lowest ratings, and the first and second average ratings are much closer than that of Kabinett or Auslese. Perhaps then it is OK to declare an ordering effect since these averages were all based on a handful of tasters, and hence we should permit some degree of give-or-take? But what degree is acceptable, and how would that be determined?



What can be deduced from this data?

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

In case my stat preaching is getting you dizzy (instead of tipsy), let me stop here to say that the actual statistical analysis is simpler and less confusing than ad hoc number games because they follow well specified probability rules and can be carried out by computer (but of course only in the hands of sober trained professionals). As a matter of fact, the whole idea of statistical analysis and more broadly data science is to help humans navigate mind-boggling "number games" created by complex problems—judging wine quality and understanding consumer preferences is one of them. We can then see the big picture and act

on essences, instead of getting lost in a maze or jungle. Through pedagogical activities such as wine tasting, the students in the Happy Course got a direct taste of how real-life statistics help to reveal simplicity within and from complexity, a process—perhaps ironically—not unlike seeking complexity out of seemingly simple fermented grape juice, because both processes require training, practicing, understanding, judging, and a bit of luck.

Xiao-Li Meng, Ph.D.
Whipple V. N. Jones Professor of Statistics,
Department of Statistics,
Harvard University.

IMPACCT RWE Summit Allows Exploration of Future of Real-World Evidence

Kelly H. Zou

Kelly Zou, PhD, PStat, PASA,
Head,
Global Medical Analytics & Real World Evidence,
Viatris, USA.

The 12th IMPACCT Real World Evidence Summit is set to take place October 29–31 in Boston. Industry leaders, researchers, and professionals will gather to explore the latest trends and advances in real-world evidence. Following is an interview with featured speaker Kelly H. Zou, who serves as head of global medical analytics, real world evidence, and health economics and outcomes research at Viatris.

How has the landscape for real-world evidence progressed in the last 12 months?

The field of real-world evidence generated from real-world data has progressed significantly since the 21st Century Cures Act. First, efforts to enhance data interoperability have facilitated smoother data exchange across different platforms and systems, making it easier to aggregate or integrate data from diverse sources. Enhanced data analytics and artificial intelligence tools have improved the ability to process and interpret large data sets. These advances have enabled more precise and actionable insights from real-world data.

Second, regulatory bodies such as the US Food and Drug Administration and European Medicines Agency have issued new guidelines and frameworks to support the use of real-world evidence in decision-making processes. Their emphasis on big data has increased the acceptance and integration of real-world evidence in randomized controlled clinical trials for drug approvals.

Next, there has been increasing collaboration between health care providers, biopharmaceutical companies, and health technology firms. One example is Gravitate Health, with a large set of industry and academic partners in both Europe and the United States. Moreover, an increased focus on target-trial emulations, external control arms, and patient-reported outcomes may provide a more holistic patient outcome assessment.

Finally, data privacy regulations and ethical guidelines are paramount to ensure the responsible use of real-world data, addressing concerns about patient confidentiality and privacy.

In summary, there have been recent advances in technology, regulatory support, collaboration, patient-centric approaches, ethical standards, and interoperability in terms of real-world evidence generation.

What are the biggest challenges the field is facing in real-world evidence, and how can the industry overcome them?

The industry faces several hurdles in fully maximizing the value of real-world data to gain timely and relevant real-world evidence. High-quality, standardized, and fit-for-purpose data is crucial. Integrating data from various sources remains challenging. For example, data sources are particularly siloed in the United States. Seamless integration is essential for comprehensive analysis.

Next, navigating regulatory requirements and ethical concerns is necessary to maintain compliance and protect patient privacy. In terms of data science, advanced analytics and relying on AI and machine learning are useful in processing and interpreting vast amounts of data accurately. Also, engaging stakeholders—including patients, health care providers, and policymakers—is vital for successful real-world evidence generation.

Finally, actionable insights through use cases are crucial for demonstrating the values of real-world data. To address these challenges, industry must consider ways for end-to-end evidence generation to

complement randomized controlled clinical trials.

What is the most exciting opportunity to maximize the utility of real-world evidence?

The most exciting opportunity to maximize the utility of real-world data and real-world evidence lies in leveraging advanced data science and AI. The FDA has issued two discussion papers, while the European Medicines Agency has issued a reflection paper—all on AI.

AI/ML may be used to process vast amounts of real-world data quickly and accurately, uncovering patterns and insights that were previously unattainable. This capability enhances predictive analytics, enabling more precise and personalized treatment plans.

Additionally, AI-driven digital health and innovative tools may help identify and correct inconsistencies in big data, thus ensuring more reliable outcomes. And integrating AI with real-world evidence not only accelerates drug development and approval processes but also enhances post-market surveillance, leading to safer and more effective health care solutions.

This is an era of potential transformative shifts in how health care data can be accessed and harnessed in diagnoses, treatments, and prognoses to optimize patient care.

What are the challenges of advancing real-world evidence and ensuring data quality is at a high level in the process?

Several challenges in advancing real-world evidence and maintaining data quality lie in the complexities of "data relating to patient health status and/or the delivery of health care routinely collected from a variety of sources," according to the FDA. Overall, challenges in advancing real-world evidence and maintaining data quality include the following:

1. Standardizing and integrating diverse data types
2. Ensuring accuracy, completeness, and consistency
3. Adhering to privacy standards and ethical use
4. Creating clear guidelines and robust methodologies
5. Accessing advanced tools and expertise
6. Integrating and sharing data across platforms seamlessly

Specifically, standardizing data and integrating diverse data types require extensive data engineering and computer science capabilities. Ensuring accuracy, completeness, and consistency require one to understand data generation and data capture modalities. Adhering to multinational privacy standards and ethical use can be daunting. Establishing clear guidelines, robust processes, and cutting-edge tools are critical for understanding how real-world data can be used in regulatory settings and for safety purposes, as well as for health technology assessments.

What are you looking forward to about the 12th IMPACCT Real-World Evidence Summit?

Throughout the entire lively panel discussion, a few insightful wisdoms emerged for Statisticians and Data Scientists, especially those who are studying and still in their early-career stages. I have participated in IMPACCT RWE summits over the years and chaired two of them. In this series of summits, industry leaders and experts discuss latest trends and future directions in real-world evidence. Panels share their thoughts about regulatory perspectives, data integration, and the impact of real-world evidence on clinical practice.

In terms of use case examples, it is particularly relevant for biopharma experts, data providers, and analytic solution providers to showcase both the successes and pitfalls of real-world evidence for health care decision-making.

The workshops have been excellent. Last year, my co-instructor and I ran an interactive workshop on external control arms. All sessions are designed for attendees to network with peers, industry leaders, and potential collaborators.

The exhibit hall provides the opportunity to talk with company representatives about the latest tools, technologies, and services.

Finally, Boston in the fall is wonderful for professional networking, especially from the perspective of the former Bostonian in me.

Report From Outreach and Engagement (O&E) Committee

Jin Zhou, Qing Yang, Rochelle Fu

On behalf of the committee co-chairs, Jin Zhou (jinjinzhou@ucla.edu) and Qing Yang (qing.yang@duke.edu), along with Jun Zhao (njzhao@gmail.com), Weining Shen (weinings@uci.edu), Gang Li (vli@ucla.edu), Chengsheng Jiang (Chengsheng.jiang@gmail.com), Ming Wang (mxw827@case.edu), and Grace Li (li_ying_grace@lilly.com), report the following:

The ICSA Outreach and Engagement Committee

In 2024, the ICSA Outreach and Engagement (O&E) Committee carried out several notable activities. On March 17, 2024, ICSA proudly sponsored the "Fireside Conversation on Empowering Statistics in the Era of AI" in collaboration with the Stats Up AI Alliance (recordings). This session was attended by 20 esteemed leaders who discussed how statisticians could pioneer trustworthy AI, deliberated on the future of statistical education, and examined the role of journals in bridging AI and Statistics. The event was streamed live to 2,734 viewers and attracted over 800 participants from 20 countries and regions. Additionally, more than 550 attendees were engaged for over 70% of the webinar's duration. The interactive Q&A segment generated more than 155 questions covering various topics, including publishing trends, talent pool dynamics, industry collaborations, and career advice for students in AI and statistics. Throughout 2024, the O&E committee also engaged members and non-members by helping organize four ICSA-sponsored social events during the 2024 Joint Statistical Meetings (JSM) in Portland, Oregon. These included jogging/walking (co-sponsored with the ASA section of Statistics Genetics and Genomics), tennis, badminton, and a photo contest during the ICSA JSM dinner cruise. Finally, O&E maintained active social media roles on X and LinkedIn, keeping ICSA's community informed and connected.

Jin Zhou, PhD, and Qing Yang, PhD ICSA Outreach and Engagement (O&E) Committee Co-Chairs.

ICSA Annual Banquet and other activities at 2024 JSM

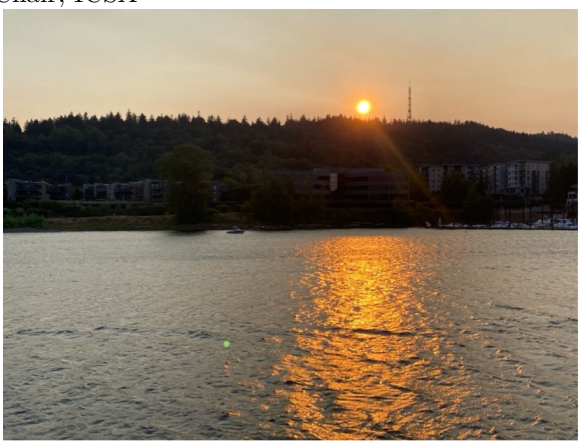
The ICSA Annual Banquet at the 2024 JSM in Portland, Oregon was an unforgettable evening. Following the member meeting on August 7, 121 attendees boarded a scenic dinner cruise along the picturesque Willamette River, taking in stunning sunset views of the historic Milwaukie waterfront and the nightlights of the Portland city skyline while enjoying a three-course dinner and live music. Demand was so high that the event sold out quickly, resulting in a substantial waiting list for tickets.

With a special rate of $60 for adults (compared to the standard group rate $99), and $40 for children aged 12 and under, the banquet offered exceptional value. Proceeds from ticket sales helped cover meals, taxes, and tips. To further engage attendees, the committee organized a photo contest during the

cruise. Fifty photos were submitted, and the most popular five snapshots won a $25 Amazon gift card. The winners were Jun Zhao, Fangda Song, Yichuan Zhao, Keying Ye and Hulin Wu. The winning photos are attached at the end of this report.

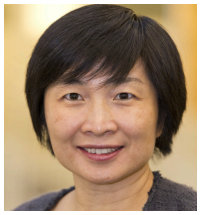
The local committee also helped organizing other JSM social activities, staffing ICSA booth, and supporting board member and general member meetings. The success of the banquet and other activities was made possible through the wonderful teamwork and dedicated support of ICSA officers and local committee members including Xun Chen, Gang Li, Jun Zhao, Rui Feng, Grace Li, Chengsheng Jiang, Jin Zhou, Yabing Mai and Shu-Ching Chang. Special acknowledgment goes to the Oregon Health & Science University Biostatistics graduate students for their outstanding work to staff ICSA booth.

Rochelle Fu, PhD 2024 JSM Local Committee Chair, ICSA



Jin Zhou, PhD,
Associate Professor,
Department of Medicine,
UCLA, USA.

Qing Yang, PhD,
Associate Professor
Duke School of Nursing,
Duke University, USA.



Rongwei (Rochelle) Fu, PhD,
Professor and Director of Biostatistics Education Program,
School of Public Health,
Oregon Health & Science University, USA.

Upcoming Events

Please find below a list of upcoming ICSA meetings. This list also appears on the ICSA website. Meetings not included in this list are not official ICSA meetings. If you have any questions, please contact Dr. Jun Zhao, the ICSA Executive Director (executive.director@icsa.org).

Upcoming ICSA Sponsored Meetings:

ICSA 2025 Applied Statistics Symposium

June 15 - 18, 2025
the ICSA Applied Statistics Symposium will be held at the University of Connecticut, Storrs, CT, from June 15 to 18, 2025. This esteemed event is organized by Dr. Xiaojing Wang (xiaojing.wang@uconn.edu) and Dr. Dacheng Liu (dacheng.liu@boehringer-ingelheim.com).

The symposium will feature a diverse range of activities, including keynote speeches, scientific sessions, short courses, poster sessions, a members' meeting, a mixer, a traditional ICSA banquet, and other social gatherings. This event promises to be an excellent opportunity for networking, collaboration, and professional development.

For detailed information, including the timeline and registration details, please refer to 2025 ICSA Applied Statistics Symposium.

We look forward to your participation in this significant event.

ICSA 2025 China Conference

June 28-30, 2025
The 2025 ICSA China Conference will be held from June 28 to 30, 2025, in the beautiful coastal city of Zhuhai, Guangdong Province, China. The conference is co-sponsored by the ICSA and Beijing Normal University. This prestigious event will be co-chaired by Prof. Lixing Zhu (lzhu@bnu.edu.cn) and Prof. Yuanjia Wang (yw2016@cumu.columbia.edu). Under the theme "Future in Statistics: Partnership and Innovation in the Data-Rich Era," this conference will serve as a vibrant platform to connect researchers in academia, industry, government, practitioners, and students globally, pushing the frontiers of statistics in today's data-rich world to solve real-world challenges. Information and key dates, including the registration, submission of invited session and short course proposals, can be found 2025 ICSA China Conference or ICSA 2025 China.

The 13th ICSA International Conference

December 17 - 20, 2025
This conference will take place in Taipei. With the theme "The New Frontier: Statistical Science in a Changing World, " this prestigious event will be co-organized by ICSA, the Institute of Statistical Science, Academia Sinica (ISSAS), in collaboration with the Chinese Institute of Probability and Statistics (CIPS). For detailed information, you may refer to this site.

ICSA Co-sponsored Meetings:

Workshop on "Experimental Designs in the Era of Artificial Intelligence", at UC Berkeley, California

March 7 –8, 2025
This workshop aims to bring leaders and junior researchers from diverse fields and backgrounds, including statisticians, biostatisticians, and industrial partners, to foster collaborative dialogues, identify pressing challenges, and explore connections among various fields in experimental designs in this age of AI. For more information, please contact Dr. Jingshen Wang (jingshenwang@berkeley.edu), or https://www.design-ai.site/Berkeley-2025/.

The 10th Workshop on Biostatistics and Bioinformatics

May 9 –11, 2025
Biostatistics and Bioinformatics have been playing key and important roles in statistics and other scientific research fields in recent years. The workshop aims to stimulate research and to foster the interaction of researchers in Biostatistics & Bioinformatics research areas. The workshop will be held at Atlanta, GA from May 9 to 11, 2025. Please refer to this site: The 10th Workshop on Biostatistics and Bioinformatics, for detailed information of the workshop including keynote speakers, programs, etc.

Symposium on Foundations for Statistical Science

July 25 –26, 2025

Symposium on Foundations for Statistical Science will be held in Kunming, China. The conference will honor Professor Jiahua Chen's significant contributions to statistical science and celebrate his 65th birthday. The program includes keynote and invited talks on various statistical topics, reflecting Professor Chen's impact on finite mixture models, Bayesian information theory, experimental design, and survey sampling. The event also acknowledges his roles as Editor-in-Chief of The Canadian Journal of Statistics and the 2005 President of ICSA. For more information, contact Prof. Changbao Wu (cbwu@uwaterloo.ca).

Report from ICSA Webinar Sub-Committee

Qing Yang, Deli Wang

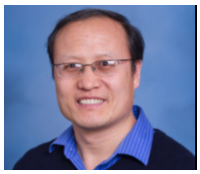
Over the past year, the ICSA Webinar Sub-Committee has successfully delivered six high-quality webinars and panel discussions featuring experts in the pharmaceutical industry. These webinars, organized into two series–"Soft Skills and Leadership Development in the Pharmaceutical Industry" and "Technical Training in the Pharmaceutical Industry" –have attracted nearly 1000 registrants and over 500 attendees. Participants engaged actively, with 89 Q&A questions submitted during the sessions. Beyond sharing knowledge, the series has fostered a sense of community among professionals, creating a valuable platform for learning, connection, and growth. All webinar recordings are available on our YouTube channel at https://www.youtube.com/@ICSA-Webinar.

With a well-established platform and process, we are excited to expand our offerings with a new webinar series focused on career development in academia. Potential topics include "Landing Your First Academic Position" and "Thriving as a Statistical Collaborator in Academia." If you' re interested in contributing or participating, we'd love to hear from you!

Table 1. Overview of ICSA Webinars Statistics for 2024

Time	# of registrars	# of attendants	# of Q&A questions asked
Feb 2024	213	122	44
Mar 2024	125	90	19
Apr 2024	123	67	7
May 2024	166	95	6
Sep 2024	226	97	9
Oct 2024	123	50	4
Total	976	521	89

Qing Yang, PhD,
Associate Professor
Duke School of Nursing,
Duke University, USA.



Deli Wang, PhD,
Director
Abbvie, USA.