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International Chinese Statistical Association

泛華統計協會

Bulletin

會刊

2019 ICSA China Conference Pictures

← Opening remarks: Dr. Zhezhen Jin, Professor of Biostatistics in Columbia University (Chair of 2019 ICSA China conference)

→ Opening remarks: Dr. Jing Li, Vice President of Nankai University

← Opening remarks by 2019 ICSA President: Dr. Heping Zhang, Susan Dwight Bliss Professor of Biostatistics, Professor in the Child Study Center and Professor of Statistics and Data Science in Yale University

2019 ICSA China Conference Pictures

← Student volunteers

→ Some local organizers (from left): Zixiong Ren, Shuyan Lin, Min-Qian Liu, Zhaojun Wang and Changliang Zou

← Opening at auditorium (front from left): Li-Xin Zhang, Hongyu Zhao, Heping Zhang, Jianguo (Tony) Sun, Gang Li, Jing Li and Zhaojun Wang

→ Opening at auditorium (from left): Li-Xin Zhang, Jianguo (Tony), Gang Li, Heping Zhang, Hongyu Zhao, Zhezhen Jin and Mengling Liu

2019 ICSA China Conference Pictures

← Junior Researcher Award Ceremony (from left): Gang Li, Yuanyuan Zhang, Guanyu Hu, Boxiang Wang, Yichi Zhang, Haonan Wang and Zhezhen Jin

→ From left: Lu Tian, Haonan Wang, Yongjin Wang, Zhaojun Wang, Wei Geng, Zhezhen Jin, Xueqin Wang and Bo Huang

← Audience in a session: Jiayang Sun and Linda Zhao (front from left)

→ Banquet

ICSA Bulletin

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Editorial Staff

From the Editor

Yi Huang

Dear ICSA Members,

Welcome to the 2020 Jan issue of the ICSA Bulletin. An outbreak of a novel coronavirus at the start of the year led to a COVID-19 pandemic and has forced humanity to confront a truly international public health crisis. As Dr. Larry Bacow, President of Harvard University, wrote,

"No one knows what we will face in the weeks ahead, but everyone knows enough to understand that COVID-19 will test our capacities to be kind and generous, and to see beyond ourselves and our own interests. Our task now is to bring the best of who we are and what we do to a world that is more complex and more confused than any of us would like it to be. May we all proceed with wisdom and grace."

At this difficult time, on behalf of the editorial board and ICSA leadership team, I want to send our best wishes to you, your family, and your community, for a safe and smooth year! We are in this crisis together. When "I" is replaced with "we", even "illness" become "wellness"!

The theme of this issue is empowering ourselves for a more efficient and productive career. While as one of the most popular topics of New Year's resolutions, it is also apt for conversation during this special "work from home" time. More and more of us struggle with procrastination, fight temptations and grapple with distractions in busy daily lives for weeks, months, even years. As a result, empowering ourselves with expert efficiency tools and productivity advice is critically important for reaching our career goals. As James Clear said on Twitter: "You do not rise to the level of your goals. You fall to the level of your system." In another words, how you spent the day is how you spend the years. To keep high productivity, we need to plan our career strategically, even courageously, and focus on execution by prioritizing and disciplining ourselves regularly.

This issue features the well-considered thoughts from two of our industry's leaders. The first article is by Dr. Jing Huang, a distinguished alumnus of Stanford University Statistics Department, Senior Vice President of Bioinformatics and Data Science, Veracyte Inc, Founding President and Chairman of the Board of Directors of DahShu organization, Council of Chapters Representative and leaders in conferences - San Francisco Bay Area ASA Chapter, and a proud mother of two. How does she manage so many demanding leadership roles in a successful career, as well as maintain a sustainable life-career balance? She shares her words of wisdom in "Grasp Your Career in Your Own Hands: Be the CEO of YOU.com". Have you thought about the mission statement of YOU.com? Are you in the driver's seat, or do others or external factors control your life instead? Either way, Jing's piece is a very inspiring and interesting read, offering numerous efficiently and productively insights from her industry's perspective.

The second article introduces the Time, Energy, and Attention (TEA) framework, suggesting three pillars of productivity you need to unlock your full potential. Compiled by your Editor-in-Chief, this article integrates multiple blog posts published by Mr. Thanh Pham, Asian Efficiency's CEO and founder, and his company's leadership team in 2018 and 2019. Thanh is considered to be one of the top thought leaders in the productivity industry, and has been featured in Fast Company, Inc.com, Forbes, Huffington Post, and The Globe & Mail. His TEA framework and associated podcast series have been instrumental in reshaping my work approach. I am grateful to have Thanh's permission to share his thoughts with you.

This issue features five column articles. Two are on "Yi's FDA Story: Where Statistics Met Regulation". As a statistician and leader, Dr. Yi Tsong shares his remarkable personal experience and insider stories of ICSA and FDA , Gifted with a great sense of humor, they make for an enjoyable read. The 1990 article shared Yi's experience on hosting the First ICSA Applied Statistical Symposium at NIH campus, as well as his experience working to improve the quality of Adverse Drug Reaction (ADR) reporting through intervention. His 1991 article described how his research led to the revision of FDA Draft Guideline for Post-marketing Reporting of Adverse Drug Reactions published in 1992. , Quite fascinating are how his efforts shaped statistical procedures to determine whether a significant increase in reports of ADRs has occurred. Dr. Hans Rudolf Künsch shares his suggestions and thoughts on travel and conferences, and provides inspiring tips on how to make the best use of these in "Hints from Hans". Dr. Terry Speed emphasizes the

importance of communication on career advancement, and provides helpful ways to improve speaking, reading, and writing, in his column "Terence's Stuff". Dr. Xiao-Li Meng pointes out the "Joy of Statistics" should be a more powerful and sustainable driving force to attract people into statistical career than job market alone in this digital age in his "XL-Files".

Turning to ICSA business, this issue includes messages from the 2020 ICSA President Jianguo (Tony) Sun, the 2019 President Heping Zhang, the 2020 President-Elect Colin O. Wu, and the 2020 - 2022 Executive Director Mengling Liu; introduction of 2020 executives and committee members. Also included are calls for nominations for 2021 ICSA officers and for 2020 ICSA awards; the report from the 2019 Program Committees, the report from the 11th ICSA International Conference, the report from the 2019 ICSA China Conference, the report of the workshop on the future of Big Data and Artificial Intelligence; ICSA 2019 financial report; as well as announcements of 2020 ICSA Applied Statistics Symposium committees and short courses. And don't forget to review the multiple upcoming meetings and conferences announced at the end of this issue.

Finally, I would like to thank all the authors and contributors, ICSA executives and committees for their strong support and enthusiasm for the *ICSA Bulletin*. Best wishes for a safe and healthy year!

Yi Huang, Ph.D.
Editor-in-Chief, ICSA Bulletin
Associate Professor
Graduate Program Director of Statistics
Departiment of Mathematics and Statistics
University of Maryland, Baltimore County

From the 2020 President, ICSA

Jianguo (Tony) Sun

Dear ICSA Members and Friends of ICSA,

Happy New Year! It is my great pleasure and honor to talk to all of you to review what we have accomplished in 2019 and what are ahead for us in 2020. Before that, first I want to thank Drs. Aiyi Liu, 2018 ICSA President, and Heping Zhang, 2019 ICSA President, for their leadership and dedication as well as their hard work for ICSA. Especially I learned so much from them during 2019 and working with them together prepares me well for my work in 2020. Also I wish to thank Dr. Gang Li, ICSA Executive Director for last three years, from whom I learned so much too during last year, and Dr. Mengling Liu, who took over the Executive Director position starting January 1, 2020 but has already started hard working long before the starting date. Of course, there are so many other people from whom I have learned so much or who have given me such great examples for how to lead our association for the coming year. With Mengling, Dr. Collin Wu, the ICSA President-Elect, and others executive committee members as well as ICSA members and friends, I am sure we will make ICSA better and also provide better services to our members.

Looking back, ICSA has accomplished so much under the leadership of Drs. Heping Zhang and Gang Li and I am inspired by what we have accomplished and how far we have come together. Of course, this is also largely due to your support and dedications and I hope that you will continue to do so. Currently ICSA has two peer-reviewed journals, Statistica Sinica and Statistics in Biosciences, and a cosponsored journal Statistics and Its Interface. Under the leadership of the Editors and the Associate Editors and due to their hard work, all three journals have been doing well and drawn a great deal of attention in our profession. Of course, this is also largely due to your continuous and strong support and I hope that all of you will keep up the support.

Looking forward, ICSA will have two major events in 2020. One is 2020 ICSA Applied Statistics Symposium which will be held during May 17 —20, 2020 at Westin Galleria Houston, Houston, Texas, with the theme "Advancing Statistics for Data Intelligence". This will be the 29th annual symposium for ICSA and for its success, the Symposium Executive Committee, chaired by Dr. Hulin Wu at the University of Texas Health Science Center at Houston, has started to work on it long time ago and put tremendous work and efforts on it. In particular, they have identified three excellent keynote speakers, Dr. Xihong Lin from Harvard University, Dr. Michael Jordan from UC Berkeley and Dr. Josh Chen from Globe Biostatistical Sciences, and banquet speaker, Dr. Hong Ogle from Bank of America. The other event is 2020 ICSA China Conference which will be held during June 26 —29, 2020 at Zhongnan University of Economics and Law (ZUEL), Wuhan, China, with the theme "Statistics for Advancing Sciences". Currently the Program Committee, co-chaired by Drs. Ying Zhang from the University of Nebraska MedicalCenter and Hui Zhao from ZUEL, is working hard to put an outstanding program in place. In particular, two great keynote speakers have been identified and they are Dr. Jon Wellner from the University of Washington at Seattle, Washington, USA and Dr. Shurong Zheng from the Northeast Normal University, Changchun, Jilin, China. For both conferences, there will be awards given to junior researchers. I greatly appreciate ZUEL for co-organizing the 2020 ICSA China Conference and am deeply grateful to Drs. Hulin Wu, Ying Zhang and Hui Zhao for leading the charge and their hard work.

Among others, one major thing that ICSA has started working in 2019 and is planning to complete in 2020 is the ICSA website. To make it more accessible and useful to our members, the IT Committee, chaired by Chengsheng Jiang, has put tremendous work and efforts on it so far and I am sure that it will look professionally and provide effective functions and support when the new version is ready. Another priority of ICSA in 2020 is member service and promotion of the association as well as attracting and promoting students and young researchers. Especially ICSA has established several awards for students and young researchers such as student travel awards, Jinn-Ping Hsu Student Paper awards and junior researcher awards (please see ICSA website).

Again I wish to thank all members and friends of ICSA for your continuous support, participation of various ICSA activities and volunteer work. In particular, I am deeply grateful to following commit-

tee chairs, Drs. Ivan Chan (Lingzi Lu Award), Joyce Chang (Archive), Jianqing Fan (Special Lectures), Rui Feng (Financial Advisory), Bo Fu (Membership), Rochelle Fu (Finance), Joan Hu (Nomination), Chengsheng Jiang (IT), Zhezhen Jin (Program), Xiangrong Yin (Awards), Yichuan Zhao (Publication). Without your support and involvement, the success of ICSA would not be possible. I hope that I can hear from all of you from time to time about your thoughts and suggestions and we all can work closely together to continue the success of ICSA and make ICSA better. Also I wish all of ICSA members and friends a great and successful 2020!

Jianguo (Tony) Sun, Ph.D.
2020 President, ICSA
Professor of Statistics
University of Missouri

From the 2019 President, ICSA

Heping Zhang

Dear ICSA Members and Friends,

It has been a great pleasure and honor to serve as the president of the ICSA in 2019, and this opportunity enabled me to witness and experience the dynamic and exciting activities that have been happening in our community. If I didn't realize it the end of 2019, it is more than obvious now that the ICSA had been so fortunate to have accomplished so much in 2019!

Being established in 1987, the ICSA now has over 1,500 members including a few hundreds of students who we offer free membership.

This year began with the successful data science conference that took place on January 11-13, 2019, in Xishuangbanna, Yunnan, China. It was co-organized by ICSA, Yunan Applied Statistical Association, and Shanghai Jiaotong University. I would like to thank Professor Ming Yuan at Columbia University, the program committee that he chaired, and the local committee for their hard work and contribution.

I had the pleasure to attend and speak briefly in the highly successful 2019 Applied Statistics Symposium and 2019 ICSA China Conference. The 2019 Applied Statistics Symposium was held on June 9-12, 2019 at the Raleigh Convention Center in Raleigh, NC, and the organization committee was led by Professor Wenbin Lu, at the North Carolina State University. This Symposium featured three keynote speakers: Marie Davidian at North Carolina State University, Steve Ruberg at Analytix Thinking, and Lilly Yue at U.S. Food and Drug Administration, representing academia, industry, and government agencies. The 2019 ICSA China Conference took place on July 1-July 4, 2019 on the campus of Nankai University in Tianjin, China. This Conference was organized jointly by the ICSA, Nankai University and Shanghai Jiaotong University. Professor Zhezhen Jin at Columbia University chaired the organization committee. Hongyu Zhao at Yale University and Lixin Zhang at Zhejiang University gave keynote lectures on "Statistical Methods for Genetic Risk Prediction" and "Adaptive-randomization—Models and Theory," respectively. In both meetings, prizes were given to a number of student participants for their excellent research and presentations. I wish to thank Professors Lu and Jin and their committees for the amazing successes.

To promote next-generation leaders in our community, the ICSA established an Outstanding Young Investigator award in 2019. The ICSA award committee chaired by Professor Yufeng Liu at the University of North Carolina, Chapel Hill, selected Professor Xi Chen at New York University, Xiaohui Chen at University of Illinois Urbana-Champaign, and Gongjun Xu at University of Michigan as the 2019 recipients. In addition, Professor Tony Cai at University of Pennsylvania was the 2019 ICSA Achievement Award winner. I would like to thank Professor Liu for leading the ICSA award committee, and congratulate those outstanding award winners.

The 11th ICSA International Conference took place at Zhejiang University, Hangzhou, Zhejiang, China, from December 20, 2019 to December 22, 2019. This series of international conferences is the most important events of ICSA, and takes place every three years. The organizing committee was chaired by Hongzhe Li at University of Pennsylvania. The conference featured three keynote speakers, Jianqing Fan at Princeton University, Zhiliang Ying at Columbia University, and Hongyu Zhao at

Yale University. Professor Fan delivered the inaugural Peter Hall lecture, and Professor Zhao was the recipient of 2019 Pao-Li Hsu Award. This Pao-Li Hsu Award is selected every three years.

The establishment and growth of ICSA would not be possible without the dedication of many volunteers, especially Dr. Gang Li, the past ICSA Executive Director, and his successor, Professor Mengling Liu, the present ICSA Executive Director. It has been my privilege and great pleasure to have been working with Dr. Li, and more recently with Professor Liu. The ICSA has been fortunate to have them leading the daily operation. Also importantly, the ICSA committees and their chairs had done outstanding jobs. For example, Professor Jianqing Fan led the Special Lectures and his committee selected a list of outstanding ICSA members who will deliver special lectures in future ICSA conferences. Professor Annie Qu at University of Illinois Urbana-Champaign chaired the nomination committee that recommended well-qualified candidates for the leadership of the ICSA in the next few years. Professor Peter Song at University of Michigan chaired the Program Committee that coordinated all of the exciting activities related to the ICSA meetings. It has been a rewarding experience for me to serve in the ICSA Executive Committee and have the opportunity to work closely with Professors Tony Cai (a former ICSA president), Aiyi Liu (the past ICSA past-president), Tony Sun (the ICSA president), and Colin Wu (the ICSA president-elect). There are too many individuals whom I feel grateful for their contributions to the ICSA, including all editors as well as those working at the ICSA office.

Another important and quite unique event is the selection of the co-editors of Statistica Sinica. Those co-editors are replaced every three years. So, there are a few important coincidences that happened in 2019, and will take place again after another three years.

Thanks to the outstanding and dedicated contribution of our members, ICSA is now a major association in the statistical society. We are strong and thriving, but we also face challenges like every other society. With your support, we will be stronger! I wish everyone a safe, healthy, and productive year of 2020! Thank you all!

Heping Zhang, Ph.D.
2019 President, ICSA
Susan Dwight Bliss Professor of Biostatistics
Professor in the Child Study Center and Professor of Statistics and Data Science
Yale School of Public Health
Yale University

From the 2020 President-elect, ICSA

ICSA in the Era of Data Science

Colin O. Wu

I feel very much honored to have this opportunity serving the ICSA community. Benefited by the great efforts and talents of its members, ICSA has grown from a relatively small organization in the 1980's to the fourth largest and highly reputable statistical society in the world. The excellent research and professional contributions of our members have been rightfully recognized worldwide. Many of our members are world renowned leaders in statistics and data science, and most notably, we have a pool of very talented and dedicated young people who are well suited to be tomorrow's leaders of our profession. These are all our valuable assets which we should continue to invest in the future.

My own professional career as a statistician has been immensely benefited from the activities of ICSA, which include the opportunities for organizing and presenting in ICSA conferences, publishing in ICSA journals and, most important of all, meeting and collaborating with many talented ICSA members. I feel very fortunate to have ICSA as my professional home since the early years of my career, and I am thankful for all the encouragement and support I received from many dear friends I met at numerous ICSA events. As a permanent member and the 2020 President-Elect of ICSA, I would very much like to see ICSA to expand and flourish into the future, so that it can continue to benefit the next generation of statisticians and data scientists. This task requires time, effort and dedicated contributions from all its devoted members. To me, it is an honor to have an opportunity to provide my input to further improve ICSA as a leading statistical

hub in the world.

As we enter 2020, I envision that ICSA can be more inclusive and further expand its leadership in statistical methods in the era of data science. This includes promoting promising research in many frontiers of data science, facilitating collaboration among researchers in academia, industry and government, and training future statisticians and data scientists. Facing with the new challenges of the "Real World Data/Real World Evidence" (RWD/RWE) era, ICSA is in a unique position to promote its statistical methodological research to other areas of data science through collaborations. We should double our effort on promoting ICSA membership and activities to professionals working on areas interfacing with statistics, such as epidemiology, information technology, system biology and bioinformatics. The ICSA conferences and journals are already doing a great job for facilitating collaborations between statisticians and other data scientists. But, many of the available resources are still under-utilized. For example, the National Institutes of Health (NIH) has many publicly available data sets from clinical, genetic and biomedical imaging studies, which have been not been thoroughly analyzed because of the lack of appropriate statistical methods. For this reason, the NIH has placed data science as one of its top research priorities. The ICSA conferences and journals are natural platforms for publicizing statistical methods, algorithms, and applications in data science, which can be used and cited by biomedical researchers. Realizing that one of the functions of ICSA is to promote its members, ICSA, given its excellent reputation, can play a more active role for potential employers to recruit both young and established statisticians.

As we look into the future, the era of data science provides a great opportunity for ICSA. I am grateful that we are living in the golden information age. Never before that the importance of data and analytical methods has been more widely recognized and appreciated by the general scientific community. With the opportunity, we are facing new challenges. But, having challenges is the reason we need to make ICSA a welcoming professional home for us all.

Colin O. Wu, Ph.D.
2020 President-Elect, ICSA
Ofce of Biostatistics Research,
National Heart, Lung and Blood Institute,
National Institutes of Health

From the Executive Director 2020-2022

Mengling Liu

Dear ICSA members,

As the successor to the excellent foundation that all previous ICSA Executive Directors have laid, I'm truly honored and excited to be the Executive Director of ICSA for the next three years of 2020 to 2022. I will work closely with the ICSA Executive Committee, Board of Directors, all working committees, and the main office to provide efficient service and support to our members and functions.

At the start of a new decade, ICSA is well positioned and will continue to grow its great impact on the field of Statistics, with our continuously increasing membership base, annual symposium, conference and local chapter meetings, and sponsored and co-sponsored book series and scientific journals. All of these work and achievement can only be possible with the support and participation from our dedicated members, to whom I'm immensely grateful.

Also when speaking of 2020, we also think of the great vision from our leaders, which led the successful growth of ICSA in the past and will lead ICSA to brighter future. As the Executive Director, I am committed to support the vision of the Presidents of ICSA and work together with them to execute new ideas and carry out operations to continuously grow ICSA community and improve our standing.

Lastly, I invite you to be an active member of ICSA: **Get in, Go Further, and Give Back** —be a part of our exciting community and help us build it further. I look forward with great anticipation to the three years ahead, meeting and working with all of you. Happy New Year!

Mengling Liu, Ph.D.
ICSA Executive Director (2020-2022)
Professor of Biostatistics
Department of Population Health
NYU Langone Health

ICSA 2020 Executives and Members of the Committees

EXECUTIVES

President: Jianguo (Tony) Sun (sunj@missouri.edu)
Past President: Heping Zhang (heping.zhang@yale.edu)
President-elect: Colin Wu (wuc@nhlbi.nih.gov)
Executive Director: Mengling Liu (mengling.liu@nyulangone.org)
ICSA Treasurer: Rochelle Fu (2019-2021, fur@ohsu.edu)
The ICSA Office Manager: Grace Ying Li,
Email: oicsa@icsa.org, Phone: (317) 287-4261.

BOARD of DIRECTORS

Chung-Chou H (Joyce) Chang (2018-2020, changj@pitt.edu),
Haitao Chu (2018-2020, chux0051@umn.edu),
Daniel Li (2018-2020, dli.lihe@gmail.com),
Mark Chunming Li (2018-2020, Chunming.M.Li@gmail.com),
Niansheng Tang (2018-2020, nstang@ynu.edu.cn).
Yinglei Lai (2019-2021, ylai@gwu.edu),
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Jason Liao (2020-2022, jason_liao@merck.com),
Bin Nan (2020-2022, bnan@umich.edu) ,
Peihua Qiu (2020-2022, pqiu@phhp.ufl.edu),
Jane Zhang (2020-2022, Zhang_Jane@Allergan.com),
Yichuan Zhao (2020-2022, yichuan@gsu.edu)

COMMITTEES

Program Committee

Chair: Zhezhen Jin (zj7@cumc.columbia.edu)
Guoqing Diao (2018-2020, gdiao@gmu.edu), Xiwu Lin (2018-2020, xlin38@ITS,JNJ.com), Wenbin Lu (2018-2020, wlu4@ncsu.edu), Liuquan Sun (2018-2020, slq@amt.ac.cn), Kai Yu (2018-2020, yuka@mail.nih.gov), Alan Y Chiang (2019-2021, achiang@celgene.com), Bin Nan (2019-2021, nanb@uci.edu), Ji Zhu (2019-2021, jizhu@umich.edu), Qingning Zhou (2020-2022, qzhou8@uncc.edu), Liang Zhu (2020-2022, Liang.Zhu@uth.tmc.edu), Hulin Wu, (2020-2022, Hulin.Wu@uth.tmc.edu), Jie Chen (2020-2022, jiechen0713@gmail.com)

Term of reference: (1) Recommend conference and symposium sites, including candidates for their Chairs. (2) Recommend general policy for all meetings, subject to approval by the Board of Directors. (3) Collaborate with symposium/conference committees in organizing sessions. Chair: Attend the board meetings at the Symposium and JSM to report the status.

Finance Committee

Chair: Rochelle Fu (2019-2021, fur@ohsu.edu),
Hongliang Shi (hongliangshi15@gmail.com), Rui Feng (ruifeng@pennmedicine.upenn.edu).

Term of reference: (1) Manage 2 ICSA bank accounts (H. Shi, ICSA main account; L. Yau, ICSA J. P. Hsu Memorial Scholarship Fund account). (2) Oversee the budget, recommend long-term financial planning, and invest the Association's assets, subject to approval by the Board of Directors. (3) Manage ICSA PayPal account for online credit card payment.

Nomination and Election Committee

Chair: Joan Hu (joan_hu@sfu.ca)
Chin-Tsang Chiang (2018-2020, chiangct@math.ntu.edu.tw), Jeen Liu (2018-2020, Liu_jeen@allergan.com), Ming Tan (2018-2020, Ming.Tan@georgetown.edu), Xin Tian (2018-2020, tianx@nhlbi.nih.gov), Bo Huang (2019-2021, Bo.Huang@pfizer.com), Chunling Liu (2019-2021, catherine.chunling.liu@polyu.edu.hk), Yiyuan She (2019-2021, yshe@stat.fsu.edu), Jiayang Sun (2019-2021, jsun@case.edu), Hailong Cheng (2020-2022, hailong.cheng@sunovion.com), Bin Zhang (2020-2022, Bin.Zhang@cchmc.org)

Term of reference: Nominate the candidates for President-elect and members of the Board of Directors. The nomination should be sent by the end of April to the EC and board directors for approval.

Publication Committee

Chair: Yichuan Zhao (2020, yichuan@gsu.edu),
Yi Huang (Editor of Bulletin, yihuang@umbc.edu),
Mei-Cheng Wang (Co-Editor of SIB, mcwang@jhu.

edu), Hongzhe Li (Co-Editor of SIB, hongzhe@mail.med.upenn.edu), Hsin-Cheng Huang (Co-Editor of S. Sinica), Ruey Tsay (Co-Editor of S. Sinica), Zhiliang Ying (Co-Editor of S. Sinica), Jiahua Chen (Editor of ICSA book series), Din Chen (Co-Editor of ICSA book series).

Term of reference: Oversee the publication policy of the Association and make recommendations to the Board of Directors.

Membership Committee

Chair: Bo Fu (2020, bo.fu@abbvie.com)
Co-Chair: Liuquan Sun (2020, slq@amt.ac.cn)
Mark Li (2018-2020, Chunming.M.Li@pfizer.com), Chenguang Wang (2018-2020, cwang68@jhmi.edu), Yaping Wang (2018-2020, yapping.wang@fda.hhs.gov), Niansheng Tang (2019-2021, nstang@ynu.edu.cn), Lei Shen (2019-2021, shen_lei@lilly.com), Shuwei Li (2020-2022, lishuwstat@163.com)

Term of reference: Recruit new members and contact interested potential individuals and organizations.

Special Lecture Committee

Chair: Jianqing Fan (2020, jianqing.fan@outlook.com);
Ming Yuan (2018-2020, ming.mingyuan@gmail.com), Zhezhen Jin (2018-2020, zj7@cumc.columbia.edu), Gang Li of UCLA, (2018-2020, vli@g.ucla.edu), Haiqun Lin (2019-2021, haiqun.lin@yale.edu), Huazhen Lin (2019-2021, linhz@swufe.edu.cn).

Term of reference: Nominate the speakers for 1) the Peter Hall Lecture at the ICSA International Conference every three years, and 2) keynote speakers for all ICSA Conferences, including the International Conference, Applied Statistics Symposium, and ICSA China Conferences, and other ad hoc conferences. This committee is to maintain the consistency of quality of speakers and avoid repetitions. (Formal invitation to the candidate(s) will be sent by the Executive Director on behalf of the Executive and Special Lecture Committees)

Awards Committee

Chair: Xiangrong Yin (2020, yinxiangrong@uky.edu)
Frank Guanghan Liu (2018-2020, guanghan_frank_liu@merck.com), Mei-Cheng Wang (2018-2020, mcwang@jhu.edu), Song Yang (2018-2020, yangso@nihlbi.nih.gov), Jie Chen (2019-2021, jiechen0713@gmail.com), Ning Hao (2019-2021, nhao@math.arizona.edu), Judy Wang (2019-2021, judywang@gwu.edu), Hongyuan Cao (2020-2022, hcao@fsu.edu), Xiaogang Su (2020-2022, xsu@utep.edu), Xiaofeng Shao (2020-2022, xshao@illinois.edu), Yichao Wu (2020-2022, yichaowu@uic.edu).

Term of reference: Accept, evaluate, and recommend nominations for ICSA Pao-Lu Hsu Award and Distinguished Achievement Award. (Formal notification to the winner(s) will be sent by the Executive Director on behalf of the Executive and Award Committees)

Financial Advisory Committee

Chair: Rui Feng (ruifeng@upenn.edu),
Hongliang Shi (hongliangshi15@gmail.com), Nianjun Liu, (liunian@indiana.edu), Xiangqin Cui (xiangqin.cui@emory.edu), Fang Chen (FangK.Chen@sas.com), Rochelle Fu (fur@ohsu.edu).

IT Committee

Chair: Chengsheng Jiang (2020, chengsheng.jiang@gmail.com)

Term of reference: Maintain ICSA web-site and its functionality.

Archive Committee

Chair: Chung-Chou H (Joyce) Chang (2020, changj@pitt.edu),
Xin Tian (2019-2021, tianx@nhlbi.nih.gov),

Term of reference: Plan and implement electronic archive for the Association.

Lingzi Lu Award Committee (ASA/ICSA)

Chair: Ivan Chan (2019-2021, ivan.chan@abbvie.com),
Jichun Xie (2018-2020, Duke University, jichun.xie@duke.edu), Shelly Hurwitz (2017-2022, hurwitz@hms.harvard.edu), Laura J Meyerson (2020-2022, laurameyerson@msn.com)

ICSA Representative to JSM Program Committee

Xuming He (2020, xmhe@umich.edu).

Term of reference: Represent ICSA in the JSM Program Committee, coordinate ICSA sponsored and co-sponsored sessions at JSM.

AD HOC COMMITTEES

2020 Applied Statistics Symposium

Hulin Wu (Hulin.Wu@uth.tmc.edu), Chair of Executive Committee.

2020 ICSA China Conference

Ying Zhang (ying.zhang@unmc.edu), Chair of the Program Committee, and Hui Zhao (hzhao@zuel.edu.cn), Co-Chair of the Program Committee.

2020 JSM Local Committee

Chair: Yong Chen

CHAPTERS

ICSA-Canada Chapter

Chair: Liqun Wang (Liqun.Wang@umanitoba.ca)

ICSA-Midwest Chapter

Chair: Li Wang (li.wang1@abbvie.com)

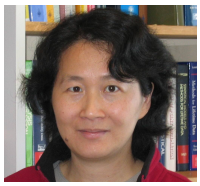
ICSA-Taiwan Chapter

Chair: Chao A. Hsiung (hsiung@nhri.org.tw)

Call for Nominations of Candidates for 2021 ICSA Officers

Joan Hu

The ICSA 2020 Nomination for Election Committee is seeking for nominations of candidates for ICSA 2021 officers: two (2) for ICSA President-Elect 2021 and twelve (12) for ICSA Board of Directors. Candidates for all positions need to be active ICSA members in 2020 and have strong interests in serving ICSA. According to the ICSA Bylaws, President-Elect should be from academia, non-academia, or no restriction, on a three-year rotational basis —one year from academia, another from non-academia, and the third year open. There is no category restriction for the candidates this year. We hope that the candidates for Board of Directors are balanced with respect to gender, region, professional interests, and area of employment (academia, industry/business, or government). Please email your nominations to Dr. Joan Hu (`joanh@sfu.ca`) with the subject: ICSA Nomination by February 29, 2020.



Joan Hu, Ph.D.
Chair, ICSA Nomination and Election Committee (2020)
Professor of Statistics
Department of Statistics and Actuarial Science
Simon Fraser University

Call for Nominations for 2020 ICSA Awards

Xiangrong Yin

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."

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

Nomination Process: Nominator is responsible for preparing a complete package for the nominee that should at minimum contain the following 1) nominee's most recent curriculum vitae; 2) cover letter from the nominator summarizing the nominee's achievement in statistical research and unselfish support of the association. Besides items 1) and 2), additional nomination material such as recommendation letters is encouraged but not required. Send the nomination materials to Award Committee Chair, Professor Xiangrong Yin, via email to `yinxiangrong@uky.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 April 1, 2020.

Additional Information: The ICSA Award Committee will review and evaluate nominations.

Outstanding Young Researcher Awards

The ICSA Young Researcher Award is presented to young scholar(s) "In recognition of the outstanding research in statistical theory, methodology, and/or applications."

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 2020 must have received a doctoral degree dated 2014 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, Professor Xiangrong Yin, via email to `yinxiangrong@uky.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 April 1, 2020.

Additional Information: The ICSA Award Committee will review and evaluate nominations.

Xiangrong Yin, Ph.D.
Chair, ICSA Award Committee (2020)
Professor of Statistics
Department of Statistics
University of Kentucky

Report from the Program Committee

Peter XK Song

The ICSA Program Committee Members:

- **Peter Song** (**Chair**, 2019)
- Wenguang Sun (2017-2019)
- Hong Tian (2017-2019)
- Mengling Liu (2018-2020)
- Xiwu Lin (2018-2020)
- Wenbin Lu (2018-2020)
- Guoqing Diao (2018-2020)
- Kai Yu (2018-2020)
- Liuquan Sun (2018-2020)
- Ji Zhu (2019-2021)
- Bin Nan (2019-2021)
- Alan Y Chiang (2019-2021)

ICSA Conferences in Year 2019

The ICSA had a very active year of 2019 for research meetings, organizing international conferences to facilitate research in statistical science. In total, ICSA organized 5 major international conferences and sponsored another 5 mainstream conferences. Among these, ICSA held two international renowned major events in the statistical science community, which have attracted over one thousand statisticians and data scientists to attend. They are ICSA China held in Nankai University in the summer and ICSA International Conference taken place in Hangzhou, and both were big successes. The major events organized by the ICSA include

- ICSA Conference on Data Science, 11-13 January 2019, Xishuangbanna, Yunnan, China;
- ICSA Applied Statistics Symposium, 9-12 June 2019, Raleigh, NC, USA;
- ICSA China Conference, 1-4 July 2019, Nankai/SJTU, Tianjin, China;
- ICSA Canada Conference "Advances and Innovations in Statistics and Data Science", 9-11 August 2019, Kingston, ON, Canada; and
- The 11th ICSA International Conference, 20-22 December 2019, Hangzhou, China

ICSA Sponsored Conferences in Year 2019

The ICSA has been one of the leading organizations to cosponsor international conferences. The sponsorship introduced new platforms for the ICSA members to engage research interactions with other researchers in the world. The major conferences sponsored by the ICSA are

- The 11th International Conference on Multiple Comparison Procedures (MCP), 12-15 December, 2019, Taipei;
- The 6th International Symposium on Biopharmaceutical Statistics (ISBS2019), 26-30 August 2019, Kyoto, Japan;
- Conference on Current Trends in Survey Statistics, 13-16 August 2019, Singapore;
- The 9th IMS-FIPS Workshop, 15-16 June 2019, Shanghai, China; and
- Innovative Design and Analysis for Complex Clinical Trials for Drug and Device Development, 10-12 April 2019, Durham, NC, USA.

ICSA Planning for Future Conferences

The ICSA Program Committee has actively engaged with planning for future ICSA conferences, in particular on the conferences to be held in years 2020-2023. Looking out the major ICSA events, both Applied Statistics Symposium and ICSA China Conference are highlights.

- Applied Statistics Symposium is an annual conference held in the North America. The 2020 ICSA Applied Statistics Symposium, 17-20 May 2020, Houston, TX. Dr. Hulin Wu is the program chair.
- ICSA 2020 China Conference will be held in Wuhan, June 26-29, 2020.
- The 12th ICSA International Conference will take place in year 2022. A proposal from a university in Hong Kong is under consideration. Further information will be announced when more concrete details of this conference are settled.

Peter XK Song, Ph.D.,
Chair, ICSA Program Committee (2019),
Professor of Biostatistics,
Associate Chair, Research,
Department of Biostatistics,
School of Public Health,
University of Michigan

Report from The 11th ICSA International Conference

Hongzhe Li

The 11th ICSA International Conference was successfully held in Hangzhou Dragon Hotel, Hangzhou, China during December 20-22, 2019. The theme of the conference is: **Innovation with Statistics and Data Science**.

The program committee has put together a strong and comprehensive program of 170 invited sessions, including three special lectures, Peter Hall Lecture by **Prof. Jianqing Fan** (Princeton University), Pao-Lu Hsu Award Lecture by **Prof. Hongyu Zhao** (Yale University School of Public Health), and Keynote Lecture by **Prof. Zhiliang Ying** (Columbia University). The conference highlighted theoretical, methodological and applied contributions of statistics, mathematics, and computer science in modern data science.

This conference attracted more than 750 statisticians working in academia, government and industry from all over the world, including Mainland China, Hong Kong, Taiwan, Japan, South Korea, India, Singapore, Australia, New Zealand, United States, Canada, Chile, United Kingdom, Switzerland, Belgium, Sweden, Israel, etc. This was truly an international conference. The conference offered the participants great opportunities for learning and networking. Over 300 participants attended the conference banquet with Chinese traditional performance.

The conference received 147 applications for the ICSA New Researcher Award, 40 of these were invited to submitted the full papers. The Award Committee, chaired by Dr. Annie Qu, selected 11 outstanding papers for the final award. These 11 awardees received their awards at the award ceremony and presented their papers at the conference.

The Program Committee would like to take this opportunity to thank our corporate sponsors, BeiGene, DiDi Chuxing, 用正医药，燃石医学 (Burning Rock Dx)，Nektar and 先声药业 for their generous supports. They are the leaders in data science research and applications.

The Program Committee and the Organizing Committee would like to particularly thank Zhejiang University for co-organizing the conference, all the student volunteers from Zhejiang University and people from Hangzhou Qizhen Exhibition Service Co. for their great efforts and hard work to make the conference possible. The Program Committee would like to express our sincere appreciation and gratitude to Mr. Weina Su and Miss. Qian Niu from Center of Data Science of Zhejiang University for their dedication to the conference.

Hongzhe Li
Chair, Program Committee
Professor of Biostatistics and Statistics
University of Pennsylvania

Report from the 2019 ICSA China Conference

Zhezhen Jin

The 2019 International Chinese Statistical Association (ICSA) China Conference was successfully held on the campus of Nankai University, in Tianjin, China, from Monday July 1 to Thursday July 4, 2019. The conference was organized jointly by ICSA, Nankai University, and Shanghai Jiaotong University. The conference was also co-sponsored by the K.C. Wong Education Foundation of Hong Kong and Chern Institute of Mathematics of Nankai University. The local organizing committee, led by Professors Zhaojun Wang and Min-Qian Liu from Nankai University, arranged meeting logistics and social events. Chaired by Dr. Zhezhen Jin, Professor at the Department of Biostatistics of Columbia University, the scientific program committee of the conference focused on creating collaboration opportunities and identifying new directions for further research. The conference attracted more than 500 participants, and offered two plenary keynote lectures, 102 invited scientific sessions, and social events that included the opening mixer (Monday, July 1 evening) and banquet (Tuesday, July 2 evening). In addition, the conference awarded four Junior Researcher Awards.

The opening ceremony was held in the auditorium of the main building of Nankai University on July 2, 2019. It was chaired by Dr. Zhezhen Jin and four opening remarks were delivered by Professor Jing Li, Vice President of Nankai University, 2019 ICSA President, Dr. Heping Zhang, Susan Dwight Bliss Professor of Yale University, local organizing committee Chair Professor Zhaojun Wang of Nankai University and Professor Min-Qian Liu of Nankai University. The keynote lectures were on emerging statistical challenges in data science era from two distinguished statisticians: Professor Hongyu Zhao from Yale University and Professor Li-Xin Zhang from Zhejiang University. Professor Zhao presented a lecture on "Statistical Methods for Genetic Risk Prediction." Professor Zhang's presentation was entitled "Adaptive Randomization—Models and Theory." The 102 parallel scientific sessions covered a wide range of topics including biostatistics, bioinformatics, statistics, engineering, finance, economics, genetics and genomics, big data computing, clinical trials, health policy and data science. The Junior Researcher Award Committee Chaired by Dr. Haonan Wang, Professor of Statistics of Colorado State University, reviewed papers from junior researchers and identified four recipients: Dr. Guanyu Hu of University of Connecticut, Dr. Boxiang Wang of University of Iowa, Dr. Yichi Zhang of University of Rhode Island, and Dr. Yuanyuan Zhang of Tsinghua University. The award ceremony was held during the banquet on July 2, 2019.

The Journal of Applied Statistics will publish a special issue with selected papers presented in the 2019 ICSA China Conference. Dr. Zhezhen Jin and Dr. Jianguo (Tony) Sun serve as the guest editors for the special issue. The submitted papers will go through a formal review according to the regular procedure of the journal. The submission deadline was November 30, 2019. The accepted papers will appear in a single issue of the Journal of Applied Statistics.

We would like to extend our genuine gratitude to all the committee members, volunteers, session organizers, speakers, and conference participants whose effort and time made the conference such a success.

Zhezhen Jin
Chair of 2019 ICSA China Program Committee
Professor of Biostatistics
Department of Biostatistics
Mailman School of Public Health
Columbia University

ICSA Financial Report: January 1 Through December 31, 2019

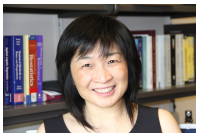
International Chinese Statistical Association
Profit and Loss
January 1, 2019 through December 31, 2019

Beginning Cash Balance (Bank/ Main Paypal accounts)	**1/1/2019**	**$449,553.69**
Income:		**$358,987.39**
Membership		$24,435.62
Springer		$5,000.00
Payment from Institute of Mathematical Statistics		$1,080.00
Job Posting		$582.00
Interest		$183.62
2018 Applied Symposium Registration/Profit		$20,000.00
2019 Applied Symposium Registration/Profit		$69,574.46
2019 XishuangBanna meeting Registration/Profit		$1,769.06
General donation to ICSA		$2,500.00
2019 HangZhou ICSA International Conference Registration		$212,842.63
2019 HangZhou ICSA International Conference Donation		$21,020.00
Total Income		**$358,987.39**
Expense:		**-$315,684.60**
ICSA bulletin Printing		-$17,341.20
Fee for ICSA status letter		-$99.00
Check order		-$30.12
Support for NISS event		-$1,000.00
Officer conference travel reimbersement		-$4,722.54
Office operation		-$5,258.46
IT cost and operation		-$16,201.69
Tax filing		-$1,294.00
Paypal fee - Main		-$630.46
Statistica Sinica Mailing fee		-$1,020.00
2019 JSM (board meeting/membership meeting)		-$6,569.79
2019 Tianjin China Meeting (awards, honorarium and other expenses)		-$45,897.34
2019 HangZhou ICSA International Conference expenses		-$95,590.00
Wire fee for 2020 symposium seed money		-$30.00
Transfer to Vanguard investiment account		-$120,000.00
Total Expense		**-$315,684.60**
Net Total Income		**$43,302.79**

International Chinese Statistical Association
Profit and Loss
January 1, 2019 through December 31, 2019

Transfer:		
+ transfer in - transfer out		
to 2020 Symposium		-$5,000.00
Total Net Transfer		**-$5,000.00**
Ending Cash Balance (Bank/Paypal accounts)	**12/31/2019**	**$487,856.48**

ASSETS	
Main Checking/Savings/PayPal	*$487,856.48*
Vanguard Investment Balance	$350,085.51
TOTAL ASSETS	**$837,941.99**
LIABILITIES & EQUITY	
Equity	
Main accounts opening balance January 1, 2019	$449,553.69
January 1 to December 31, 2019 Net Income(+)/Expense(-)	*$43,302.79*
2019 Symposium banks/Paypal accounts opening balance January 1, 2019	$138,311.77
January 1 to December 31, 2019 Net Income(+)/Expense(-)	*$95,780.65*
Vanguard investment account opening balance on January 1, 2019	$176,990.09
Investment profit(+)/loss(-)	*$53,094.82*
Additional Investiment	*$120,000.00*
Total Equity	**$1,077,033.81**
TOTAL LIABILITIES & EQUITY	**$1,077,033.81**



Rochelle Fu, Ph.D.
Treasurer (2019-2021), ICSA
Professor
OHSU-PSU School of Public Health

The Future of Big Data and Artificial Intelligence

A Recap of an Invited Session During the 2019 ICSA International Conference

Jim Z. Li, Jun Su, Haoda Fu, Yu Ji Feng, Kelly H. Zou

The International Chinese Statistical Association (ICSA) held its international conference at Zhejiang University in Hangzhou City, Zhejian Province, China from December 20 to 22, 2019, with approximately 800-1,000 attendees. ICSA conference series are regularly held both in Asia (Greater China or other Asian countries) and North America annually.

Figure 1: Dr. Haoda Fu's Presentation at the 2019 ICSA International Conference

Nowadays, data have increasingly become more abundant and can be harnessed to gain valuable insights in the healthcare industry. Various healthcare data sources, such as medical/insurance claims, electronic health records, surveys, digital sensor data, commercial data, and data from manufacturing, provide great opportunities for statisticians and data scientists at present and in the future. Researchers, statisticians, computer scientists, and data scientists are challenged and tasked with leveraging massive data to generate real world evidence and gain insights.

Figure 2: Dr. Jim Li's Presentation at the 2019 ICSA International Conference

Several data scientists and statisticians from leading institutions were invited to present their cutting-edge innovative work on real world evidence (RWE), artificial intelligence (AI), including machine learning (ML) and deep learning (DL), and beyond. Their presentations covered methodological advances and practical use cases in various disease areas ranging from cardiovascular disease, oncology, to rare disease. These speakers also highlighted the opportunities to embrace and meet the challenge arising from big data, real world data and their related disciplines for the real-world and real-life applications to gain insights. Specifically, these presenters discussed a diverse topics included: (1) Enabling data-driven innovations using RWE in a global health perspective to combat noncommunicable diseases (NCD); (2) Digitization and data-standardization using the Observational

Medical Outcomes Partnership's (OMOP) common data model (CDM); (3) Essential role of individualized treatment recommendation algorithms in the era of digital health; (4) Overcoming the challenge of identifying patients with a rare disease without diagnosis code. Along with relevant methodology and applications, this session had a wide appeal, particularly given the increasing focus on interdisciplinary research and the emergence of complex data.

Figure 3: Dr. Jun Su's Presentation at the 2019 ICSA International Conference

To develop useful AI algorithms, it is highly important to understand data generating mechanisms and systems of data generation, given the increasing focus on interdisciplinary research and the emergence of high-dimensional data. The illustrative applications can be quite valuable to statisticians across diverse areas of statistical practice. These may also help to foster the future generation of quantitative researchers and experts in data science and AI, especially those among young ICSA members embarking on their career in data science.

Disclaimer: The views expressed in this article were authors' own and may not necessarily reflect those of the authors' employers. Editorial support was not provided.

Jim Z. Li, MD, PhD,
Pfizer Upjohn

Jun Su, MD,
Sanofi

Haoda Fu, PhD,
Eli Lilly and Company

Yu Ji Feng, MD, PhD,
Real-World Analytics Solutions, IQVIA

Kelly H. Zou, PhD,
PStat®, FASA, Pfizer Upjohn

Grasp Your Career in Your Own Hands: Be the CEO of YOU.com

Jing Huang

Recently, I was invited as a panelist in a discussion of career development, and I noticed that the audience was particularly interested in topics about managing one's own career development. During this passionate discussion, I coined the phrase "be the CEO of YOU.com" which I will demonstrate here.

Before we talk about career development, we need to figure out what we want to achieve in our career. What will be the mission statement of YOU.com? Unlike other companies, where profit is a common goal, the mission statement of YOU.com can be quite unique from one to another: someone may want to climb the career ladder and earn a fat paycheck along with a fancy title and many people to manage. Someone else may want to hone their technical skills and become an expert in a specific area. Yet another may want to become a people ambassador, coordinating cross-functional effort and establishing a harmonious working environment. All of them are exciting and equally important, and no one is superior to another. The important thing is to be honest with ourselves and try to dig out our own core value behind the career goals. Am I running after the material goods or others' expectations? Or, personal fulfillment? "Why is that?" you may ask. Well, you.com is a life-long endeavor. And, you should be in the driver seat rather than let others or external factors control your life. If it is following external measurement instead of your inner passion, the motivation to pursue such effort may not last long, and the willpower to keep you on track may not be sustainable over time. Even when you achieve such goal, the joy and satisfaction gaining from achieving external goals, such as titles and raises, often quickly fade away because they are so rooted in the approval and acknowledgement of others.

Another important factor helping us sharpen the career goal is to identify and fully recognize our strengths and weaknesses. For example, a common question that I was asked is, "should I pursue a managerial track or a technical track?"On one hand, this person may not fully pin down his/her strength and weakness on which career path he/she like better, and face such uncertainty. On the other hand, this person could not resist the temptation that there might be more exciting opportunities in the managerial track, while the fear of "I have never managed people, and I don't know whether I will like it" often surfaces. "Managing people" sounds great when everything is going well, but the real test occurs when you have a difficult person/situation to handle. How is one to know whether they still enjoy managing when they are faced with such challenges? Even though there are many ways to find out, one interesting way that benefited me a lot is to volunteer at a nonprofit organization. A nonprofit organization which is grass-root in nature with few paid employees and hierarchies will work the best. First, when financial and rank incentives are stripped away, how I can influence people is 100% based on my personal skills. Trying to motivate people under such circumstances is a great way to hone such skills. Secondly, the risk involved is much smaller than trying it at your fulltime job and finding out the hard way that management does not suit you. If you make any embarrassing mistakes or realize you don't enjoy working with people in a volunteer setting, you can just exit quietly without making a big scene.

Once the goal is clear, the next step is to recruit people for YOU.com. Although you are the only permanent employee at YOU.com, you should not underestimate the impact of part-time volunteers and insightful advisors. Who will be on your board giving you guidance on your next move? Who will be your HR representative, providing you with objective evaluations and ensuring you have a good work-life balance and are fair to yourself and loved ones? Who will be your part-time volunteers forming a strong support system to give you the needed time and resources so you can focus on your career? Just like when you interview job candidates, you must pick them carefully by surrounding yourself with true friends and mentors and keeping the ones with negative energies and wrong attitudes at bay.

Beyond people, another key resource in YOU.com is your own time. How should we efficiently manage it? It is a life-saving skill. Before diving into that, let me share a little bit about myself to help put my ideas into context. I am a mother of two who is happily married to my middle school sweetheart. I am currently the Senior Vice President (SVP) of Bioinformatics and Data Science at Veracyte Inc (www.veracyte.com), a

molecular diagnostic company, who is responsible for designing, implementing, and executing bioinformatics pipelines, algorithm development, and statistical analyses across all phases of product development. I have co-authored over 30 manuscripts in peer-reviewed scientific journals with around 8000 citations and is a co-inventor of several patents (https://scholar.google.com/citations?user=BGbu7u0AAAAJ&hl=en&oi=ao). I am the founding president of DahShu (www.dahshu.org), a 501(c)(3) nonprofit organization formed four years ago to promote education and research in data science. Currently, we have close to 4000 members globally and have organized three international conferences and more than 40 online and in person professional events, which were almost all free and open to the public. Also, I serve as the Council of Chapters Representative for America Statistical Association Bay Area Chapter (www.sfasa.org),and as a board member of the newly formed Bay area Biotech-pharma Statistics Workshop (BBSW, www.bbsw.org). In my free time, my favorite things to do are to enjoy family, goof around with my kids, and immerse myself into good books. I also enjoy traveling around the world and have explored more than 20 countries over five continents, and I'm nowhere near stopping. Many ask, "how do you manage to get all these done?" I tell them that there are three keys to make this work: 1) carve out time for important things, 2) repurpose "wasted" time, and 3) delegate.

Time-consuming tasks often fall into four categories defined by two factors: important vs. unimportant and urgent vs. not-urgent. Constantly remind yourself not to be distracted by seemingly urgent but unimportant tasks, and ask yourself, "do they really need to be done?"and, "does it have to be myself to do it?" Meanwhile, intentionally save time for important things, particularly the ones that are not urgent. For example, health is very important to me and I try my best to find time to exercise. It is easier said than done for a busy mom, so I do it first thing in the morning, right before distractions erode in. I wake up early and hit our community pool by 6am to swim laps for an hour. I get home just pass 7, leaving plenty time to face the daily chaos with a re-energized body and mind. Another thing is be a little flexible and kind to yourself: there are times when I pulled a long night for work and waking up before 6am was just impossible. On those mornings, I often do a quick run around the block.

Learning to repurpose "wasted" time is equally important. I often hear complaints from working moms about their struggle of putting kids to bed: they read one bedtime story after another and everyone gets so drowsy at the end, the mom often falls asleep with the kids, "wasting" the rest of the night. To avoid that, our family separates story time from bedtime. We read stories together when everyone is wide awake. And when it is time to sleep, our bedtime routine is simply to sit in the kid's bedroom with a laptop in hand. The glow from the computer screen provides a natural bed lamp, and I can check emails and get work done, while the child is reassured that mommy is with him/her all the time. Another secret pleasure of mine is the commute. I spend two hours each day on the road to travel between home and work. This can easily be viewed as a time drain, but I have turned it into a precious "spiritual haven" where I am free from domestic and professional demands. One thing I particularly enjoy on the road is audio books. You can get them from www.audio.com, a membership service, or from your library. Audio books have enriched my mind so much, and they are convenient enough so that I could enjoy them in the car, while doing chores, and even when I'm out running. I average at about 2.5 hours each day, which adds up to "reading" more than 40 books a year!

The final aspect is delegation. Although hard to believe, my daughter has been cooking family meals since she was eight. It started as just occasionally doing little chores around the kitchen on the weekends, but with her great skills and our encouragement, she advanced fast. Now as a teenager, she routinely takes care of her and her little brother's school lunch and cooks the family dinner every night. This has been a tremendous help to me. Furthermore, my husband quietly takes the daily chore of dropping off and picking up the kids from school and as a big plus, he is also the best vacation planner the family could ever hope for. This not only saves precious time but enriches our lives immensely. Being open and willing to ask for help is often the critical first step. Delegation doesn't have to be a person, advanced technology can help as well. I now rarely go to grocery stores. Instead, I use Weee! (www.sayweee.com) to have handpicked fresh groceries deliver to my door. Remember our unique bedtime routine? Well, that's when I get my grocery shopping done as well!

I end with the most important thing of all —remember to always have a smile on your face. Career development is a marathon, not a sprint, and being able to enjoy the journey is essential. Cheers to YOU.com! I know YOU will do great!

Jing Huang, PhD,
SVP of Bioinformatics and Data Science, Veracyte Inc.
Founding President and Chair of the Board, DahShu
Board Member, Bay area Biotech-pharma Statistics Workshop
Council of Chapters Representative, San Francisco Bay Area ASA Chapter

Productivity Framework by Time, Energy, and Attention (TEA)

Editorial: This article is edited by Dr. Yi Huang combining multiple blog posts published in Asian Efficiency's company website with their company's publication permission. Their original blog posts can be found below:
TEA framework, http://www.asianefficiency.com/productivity/tea-framework/
Pillar 1, http://www.asianefficiency.com/productivity/tea-framework-making-time/
Pillar 2, http://www.asianefficiency.com/productivity/increase-energy-productivity-breakthrough/
Pillar 3, http://www.asianefficiency.com/productivity/stop-others-hijacking-attention-will-achieve-goals-tea-framework/

TEA: The 3 Pillars of Productivity You Need To Unlock Your Full Potential

Post by Mike Schmitz, Brooks Duncan, and Thanh Pham, at 2018, edited by Dr. Yi Huang.

It doesn't matter if you are a Fortune 500 CEO or a solopreneuer, whether you're happy working from home or climbing the corporate ladder. Deep down, we all want the same thing: to reach our full potential. The problem is that there are millions of potential ways to get there, and no two people are the same. Whether you are just starting on your productivity spirit quest or you've been at it awhile, the question remains: how do you know what will really work for your situation? Which "lifehack" should you apply first? Should you try a new task manager, or should you create better habits? Do you need to eat healthier, or should you try to do more deep work?

In this post, we're going to introduce you to a simple framework which will cut through the noise. Understanding the TEA framework can help you zero in on the one thing that will provide the greatest return on your time, energy, and attention investment so you can overcome the resistance that is keeping you from your ideal future.

Let me paint a picture for you based on the results of a survey I read that said 81% of Americans felt that they had a book in them and that they should write it. I like this study because it closely relates to my own story, as the process of writing my book (even though "I'm not a writer") is what led me to get connected with the Asian Efficiency team. I'll spare you the details here, because what I want to focus on is the actual numbers from this study. At the time of the survey, if the 81% that said they want to write a book actually wrote it, it would come out to around 200 million books. But the reality is that only about 80,000 books get published every year. That means only about 0.4% each year actually write their book—the rest just talk about it.

What is the thing that helps the 0.4% take action and write their book? I believe they are able to take massive action on their goals because they are able to align their lives to hit the productivity sweet spot and get "in the zone" on a regular basis.

Hitting that sweet spot doesn't happen accidentally or automatically (if it did, you wouldn't be reading this right now). You need a frame-

work which puts you in a position to align all your physical, mental, and emotional resources toward achieving your goals and creating your ideal future.

The TEA Framework

We've worked with over 13,000 people to help them solve their productivity problems and achieve their full potential, and we recognized that most of the obstacles people face can be broken down into three simple categories:

- Time
- Energy
- Attention

As we worked with people to craft solutions to their productivity problems, the light bulb went on as we began to see how these three areas fit together. All of the systems, habits, mindsets, and ideas fit nicely into this simple framework. Even better, this framework made it easy for people to self-diagnose what was keeping them from reaching their full potential, allowing them to focus on the one thing that will make a difference for them. They didn't have to try and implement everything at once because they could see right away where they needed help, and they also were able to quickly identify what they could do to fix it.

We call this the TEA Framework (Time, Energy, Attention). When you have all three of these working for you, it's easy to be productive. If you're struggling, you need to figure out where the disconnect is and take steps to address the problem. Let me give you a couple of examples:

Energy & Attention, but no Time

When you have no time, you usually feel trapped or stuck. You might say things like:

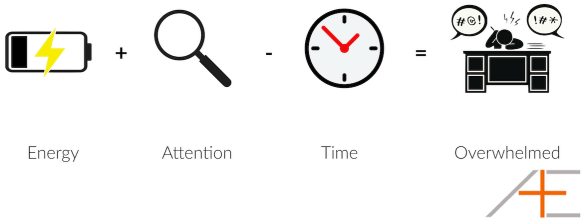
- "I wish there were more hours in a day"
- "I don't have time to do X"
- "I have so much to do and not enough time to do it"

You might have the energy to work on your important project and attention to focus on it, but you just don't have any time in your day in order to get it done.

Here are some examples of people who have Energy & Attention, but no Time:

- The overworked corporate worker that wakes up at 6am and doesn't come home until 8pm
- The overcommitted person whose calendar is jam-packed with meetings, appointments and commitments and has zero downtime
- The crazy-busy parent is who is constantly running kids back and forth from school to soccer practice and never has time for him or herself

The word to describe the person who has Energy and Attention but no Time is **overwhelmed**.



Let's go back to the example we introduced earlier of someone who wants to write a book. The person who is struggling with time is motivated to publish a book but is too busy to even write one chapter, let alone write drafts. They just have too much to do every day.

Here are some simple strategies they can use to create more time:

- Scheduling time to write every day and putting it on the calendar
- Having someone help with writing/editing
- Freeing up time elsewhere (delegating other tasks)
- Optimizing other things or systems to create time to write

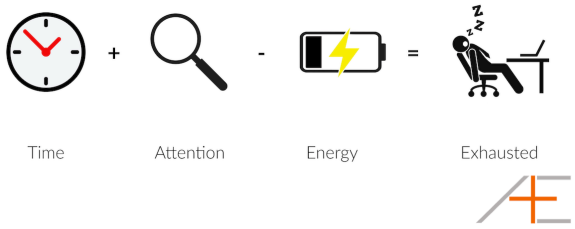
Time & Attention, but no Energy

When you have no energy, you usually feel frustrated because you know what to do and you have time to do it but you can't follow through. You find creative ways to procrastinate even though in the back of your head you're saying to yourself, "I know I should be doing X." You might have time to work on your important project and you're focused on getting it done, but you can't even get started because you just don't have enough energy to overcome the resistance and get started.

Here are some examples of people who have Time & Attention, but no Energy:

- The one time A-player in your organization that you just can't count on anymore
- The person who has everything they need to succeed but still doesn't get things done
- The person at work you never ask for help because you don't know if they can handle one more thing

The word to describe the person who has Time and Attention, but no Energy is **exhausted**.



For the person who wants to write a book, maybe they lack the motivation to sit down and write. They lay in bed on a Saturday morning, even though they have a whole day dedicated on their calendar to write. They know it's important, but they just can't face a blank page to actually start.

Here are some simple strategies they can use to create more energy:

- Go to bed earlier instead of watching Netflix so they have more energy in the morning
- Start working out regularly so they feel energized and excited when they sit down to write

Time & Energy, but no Attention

When you have no attention, you easily feel overwhelmed by everything you "need" to do. You have trouble focusing on one thing for any length of time or even selecting the right task to work on. You might say things like:

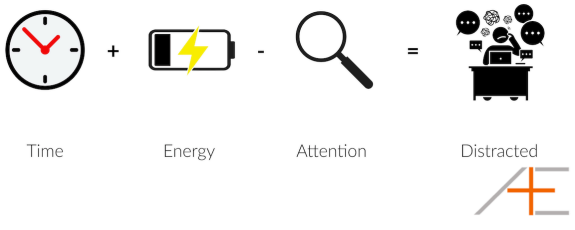
- "I have so much to do, I don't know where to start"
- "I'd like to close my email client, but I can't"
- "Where did my time go?"

You have time to work on your important project and energy to take action, but you still don't make any progress because you are constantly being distracted by things that really aren't that important.

Here are some examples of people who have Time & Energy, but no Attention:

- The high-achieving sales person that limits their earning potential by spending most of his/her time doing non-sales work
- A stay-at-home parent who doesn't actually get to spend much quality time with their kids
- The person who is always talking about their great ideas but never actually does anything

The word to describe the person who has Time and Energy, but no Attention is **distracted**.



For the person who wants to write a book, they may wake up fully refreshed on a Saturday fully intending to write but end up doing house chores and running errands instead. They get distracted by busywork and never end up writing.

Here are some simple strategies they can use to create more attention:

- Turn on Do Not Disturb when you sit down to write so you're not interrupted by notifications
- Clean your desk the day before so you there are no distractions when you sit down to write

The 3 Pillars of Productivity

Time, Energy, and Attention are the three currencies you MUST master if you want to reach your full potential. Just like a stool, you must have all 3 three legs to offer proper support. If even one of these is a little bit wobbly, you're in danger of falling on your face. In other words, Time, Energy, and Attention are the 3 Pillars of Productivity.

Let's break these down one by one.

Pillar 1: Time

The first pillar of productivity is Time. This is where most people start on their productivity journey because it's one of the most obvious signs that something is wrong ("I don't have enough time"). Time is about creating margin by manipulating the systems in your life to make them as efficient as possible. There are 3 components to time: Systems, Strategies, and People.

Systems

Systems are everywhere. In fact, our lives are comprised of a series of independent and interdependent systems. Understanding how these systems work allows you to manipulate the systems to produce the desired results. There are really 3 parts to any system. Let's examine them in relation to time:

- Inputs —The things coming in to your system. you want to control, manage, or improve everything coming in that could possibly take some of your precious time.
- Process —The actual steps and function the system will perform. The way you actually spend your time and the way you go about doing it.
- Output —The result after doing the steps in your system.

If you want to improve your use of time, you'll want to optimize the Input as much as possible, and then find the right Process to get your desired Output.

When you think about things in this way, you'll see that when you feel like you don't have enough time, there's a good chance that your Input and your Process aren't aligned, or you haven't thought through the Output (the way you want to be spending your time) you want fully.

Learn to Apply Systems Thinking

We define systems thinking as a process for understanding how things influence each other to produce favorable results.

Here's an example. My oldest son is in his first year of high school, and he is finding that it is much, much more difficult to stay on top of everything and have assignments done on time than it was in elementary school.

His initial reaction was similar to many adults who are struggling at work:

- "My teachers (bosses) are unreasonable."
- "I don't have time to get everything done."
- "I keep forgetting to do things —they just keep slipping through the cracks."
- "My parents are amazing and I listen to everything they say."
- (It's possible one of those he did not actually say.)

So, we applied some systems thinking:

- What are the inputs? —Homework comes from school. Hours a week at soccer practice/games, hours a week playing Xbox and watching Youtube, household chores.
- What is the process? —Wake up, possibly eat breakfast, do morning chores, some screen time, go to school, come home, some screen time, do homework before or after soccer, eat dinner before or after soccer, do evening chores, maybe some screen time depending on the time.
- What is the output? —Struggling at school, not sleeping well.

What levers could we pull to improve things now that we know the current system? For the output lever, he wants to do well in school, be stress-free (or as stress-free as a teenager can be), and still have time to do activities he enjoys. Obviously, reduce screen time or reduce time at soccer is one lever and the one that would jump out at most people. Optimizing the inputs could definitely help.

A possibly more impactful lever is the process lever. If we changed things up a bit, it would definitely help:

- Wake up, eat breakfast, do morning chores, review agenda to know what is coming that day, go to school, use before school time to get clarification from teachers if needed, capture things in the agenda throughout the day consistently, come home, do homework/studying right after school, have screen time, go to soccer, eat dinner, review agenda for tomorrow do evening chores, go to bed.

By switching around the process and adding a few items, there is a greater chance of him having time for his big rocks, but he still has time to do the things he wants to do (screen time, soccer).

Automating Your Life
Automation (both technical and non-technical) can have a huge impact on time, and saves you decision-making power that you can use later for the other two pillars Energy and Attention. The little things we do throughout the day really add up. Look for opportunities to:

- Automate your finances
- Automate your grocery shopping
- Automate your meal preparation
- Automate your laundry (yes, that's a thing)
- Automate your driving
- Automate your file management

All of these things will free up time for you to focus on the things you want to want to be doing.

Make a Short Term Time Investment for Long-Term Gain
There are many things you can do that take a little bit of up-front work, but have a big payoff over time.

For example, you may have tasks that have multiple steps that you need to do every time. Instead of having to remember/figure them out every time and deal with the fallout from forgetting a step, take a few moments to put together a checklist.

In the AE Dojo, our online productivity community, I shared a number of checklists I created using Siri Shortcuts on my iPad and iPhone. With one tap, the project checklist is created in my task management system. I've created one-tap checklists for:

- Travel preparation
- Things I need to do every game as a soccer team manager
- Book review and conference review
- Bookkeeping preparation

You get the idea. Everything goes faster and more smoothly with a checklist, and the more you can systematize it the better it is.

Another thing that is a short-term time investment for long-term gain is the creation of a Morning Ritual and an Evening Ritual. By consolidating the key activities for your day into these rituals, it makes sure they are completed consistently and frees up time during the day to focus on achieving your goals.

Follow A System
You want to make sure you are making the more effective use of your time and that your time is spent moving you toward your most important goals. Many people find success using an established system that has a step-by-step way to help you make decisions about what you should be doing.

Two popular systems that we like here at AE are:

- Getting Things Done (GTD) —David Allen's methodology as outlined in his famous book. We have GTD resources in The Dojo, and also our GTD 101 blog post is very popular.
- The 12 Week Year —Brian Moran's book is very popular in The Dojo because of its focus on tracking progress towards your goals. We have an excellent training course in The Dojo, and you may also find 5 Common Mistakes That Cause The 12 Week Year to Fail (and What to Do About Them) helpful as you implement it.

Whatever you use having a system will help you ensure that you are using your time wisely. As James Clear said on Twitter: "You do not rise to the level of your goals. You fall to the level of your system."

Strategies

Strategies are the "How" —how do I know what I can do that will help me make the most effective use of my time? Strategies are like maps you can use to navigate through the busyness of your day. These simple frameworks allow you to navigate difficult situations with ease and keep your day from getting thrown off track. If you know that something frequently gets you off track (i.e. dealing with email), that's a strong indication that a good strategy is required.

For example:

- Are you getting to the end of the day and you haven't made any progress on the most important thing you needed to do that day? You'll probably want to Eat That Frog.
- Do you find yourself always responding to things that pop up and don't have a handle on what you should really be doing? You'll want to learn to use a task manager to achieve your goals.
- Are you not making time to work on those big tasks that you know you really should

be doing? (For example, writing a blog post about Time⋯). The Pomodoro Method® is outstanding.

- Is email eating up your entire day? Inbox Detox will help.
- Do you have too much on your plate? Learn how to say no effectively.

People

It's one thing to figure out the strategies and systems that allow you to work efficiently, but it's quite another when you work as part of a team. Working effectively with other people bring another set of challenges, like communication, delegation, and working together as a team. You oftentimes need to be able to work effectively with people and have the right expectations so it allows you to be productive.

Sometimes it feels like we would be 100x more productive if we didn't have to interact with others. A customer told us once that she puts a traffic cone in front of her office door to people dropping in for "just a minute". Perhaps you can relate (or perhaps you're already scouting traffic cones online).

On the flip side, in some cases working with others can dramatically increase productivity. Many of the strategies in "Automating Your Life" above involve working with others. You can outsource tasks you don't want to do (or at least shouldn't be doing, even if you like it). If you're a business owner or in a leadership position, we have a podcast with 3 steps to delegate work the right way and an interview about hiring your first Executive Assistant (this has been a huge time-saver for Thanh).

If you work in an organization of almost any size, a big chunk of your working time is taken up by meetings. In the last year, we made it a priority to focus and optimize our meeting rhythm, and it's been extremely successful. We've written up what we've learned in our guide to productive meetings. Don't let Joe in Accounting's bad meeting habits suck up all your big rock time.

Additional Tactics

Finally, there are actions we can take that don't really fall into a specific system or strategy, but can help quickly free up time.

Examples include:

- Using a content blocker to shut down access to time-sucking apps and websites when you're trying to work.
- Using a text expansion tool to translate text shortcuts into larger blocks of text. If you write any amount of text on your computer, this is a lifesaver.
- Color coding and sharing your calendar.
- Wake up a little earlier than you think you can.
- Learn to use Siri Shortcuts or Google Assistant on your devices.

Action Steps

If you want to make the most of your limited time, here's what we recommend that you do:

- Figure out how you're actually spending your time (for example using Timing for the Mac or Toggl. When you have this information, it will become very clear what Inputs you may need to change to your productivity system.
- Ask yourself: Is there anything you can stop doing? If so, come up with a plan for stopping.
- Ask yourself: Is there anything you can delegate to someone else? If so, come up with a plan for that too.
- Ask yourself: If you had more time, what one thing would you do? Schedule that (put it on your calendar) and build the rest of your day or week around doing it.

Pillar 2: Energy

The second pillar of productivity is Energy. You may have the time to do your work, but if you don't have energy then you won't be able to follow through and take action on your important projects. Energy is about managing and increasing your energy so that you can overcome procrastination and achieve your goals with consistent action. There are 3 components to energy: Sleep, Rituals, and Motivation.

Sleep

If there's one force multiplier for energy, it's sleep. Most people don't get enough sleep and it's hurting their life in many ways they might not be aware of. When we lack sleep, we often:

- Crave junk food and add inches to our waist
- Procrastinate more often
- Lack willpower to do important work

- Make simple mistakes we normally wouldn't make
- Don't give our body enough recovery to perform at a high level

The number one action you can take to increase your energy is to get more sleep. We recommend that you go to bed earlier and have an evening ritual to get you ready for a good night of sleep. We have tons of free resources on this:

- Listen to this podcast to learn about to get more sleep
- Implement a simple evening ritual

Rituals

At first, you might be wondering why we include rituals under energy. At Asian Efficiency, we consider rituals the superior cousin of habits. They are specific and more effective. What rituals allow you to do is to take consistent action. Rituals will either give you energy (sometimes in the form of momentum) or save you energy.

For example, here is a list of rituals that give you energy:

- Morning ritual —start your day with lots of energy and feeling positive
- Exercise —regular exercise creates capacity for you to have more energy
- Meditation —a mindful practice that calms down the mind to give you energy on what's present

On the other hand, there are also rituals that save you energy such as:

- Batching tasks —when you group similar tasks you get them done more efficiently
- Taking breaks —we need to disengage and recharge anytime we push ourselves
- A weekly review —the more we review what is needed from ourselves the less energy we waste on activities that shouldn't be done at all

We cover a lot more rituals inside our Rituals course. For the purpose of this article, you need to understand that rituals are here to give you energy or to help you save energy (another way of saying that is to stop wasting energy so you have more capacity for other things).

Motivation

Motivation is an interesting form of energy. It can't be measured in scientific ways but we all agree that it's real. It's a mental state of mind and its core it's a feeling. When you're motivated, you feel energized. This feeling is something everyone can manufacture on command but it's a fleeting feeling. It's something all of us have to generate each day — some days more, some days less.

Even if you sleep well and you have the right rituals in your life, you can still feel unmotivated and nothing gets done. Have you ever slept 8 hours and you felt fine but you still procrastinated? Oftentimes this is a motivation issue. Luckily for you, it's relatively easy to turn around because motivation is a state and feeling. You can easily drum it up by playing your favorite upbeat music, changing environments or get your body moving. If you've ever been to a Tony Robbins seminar, you know what this looks like. You're jumping up and down and dancing to upbeat music and before you know it, your physiological state has changed and now you're all of a sudden motivated.

One other tactic people don't talk enough about is visualization. The power of visualization is very effective to get yourself motivated. As humans, we're driven to move away from pain or go toward a big benefit. You can use visualization exercises to drum up motivation by visualizing all the negative consequences if you don't do something. For example, if I visualize all the negative consequences of not processing payroll, I can imagine all the negative things coming my way, eg. employees will be unhappy, someone quits and leaves, and etc. By just visualizing all the negative consequences I'm instilling (imaginary) pain in myself that motivates me to take action. Can you see how powerful this is?

The same is also true for positive visualizations. You can use pleasurable benefits for your visualizations to motivate yourself. You could visualize how achieving a certain goal might transform your life which would trigger you to instantly feel motivated. If you're interested in learning how to do a visualization exercise, learn our Envision Film tactic here at AE.

Another way to rekindle your motivation is to reconnect with your purpose. This could be your life purpose (if you have one) or simply understanding what your why is behind a goal, project, or outcome that you're seeking. For example, whenever I don't feel motivated to exercise, I'll review my WHY behind my exercise regimen. It's this emotionally compelling reason that motivates me to get going.

Everything you do that requires effort should have a clear purpose and vision behind it. Write this down. When you feel unmotivated, revisit it and you will see how it will spark you to take action.

But What About Diet and Exercise?

You might be wondering why I didn't mention diet and exercise. Are they not important? Actually, both are very important and have a major impact on your energy levels. Based on our experience, every human has basic universal sleep needs that are easy to coach and fix. The same is true for rituals and motivation.

This is where things break apart: when it comes to diet and exercise, there's no universally agreed standard. I might do well with a low carb diet whereas someone else needs to eat a lot of carbs to maintain proper function. Another person can only walk 5,000 steps a day and feel great while another person needs to lift weights five times a week to perform at a high level.

After working with hundreds of clients and having done 100+ experiments with diet and exercise, I've come to the conclusion that it's very difficult to prescribe a baseline of what one needs to do for diet and exercise. There's too much variance of what works and doesn't work for an individual and that's why I left them out. Especially when you have to factor in all sorts of dietary restrictions, chronic pains, health concerns, and so on. So to clarify: I believe your energy levels are impacted by diet and exercise. You should exercise frequently (you already know that) and eat healthy (you know that too) to improve your health and increase your energy levels. What you should do specifically will differ drastically per person based on their unique DNA, budget, resources, and circumstances.

When you sleep well, have the right rituals, and become motivated you'll see permanent and positive changes to your energy levels. This works for everyone and why we will focus on these three components in our training materials.

Next Actions

There are many ways you can increase your energy, but the follow three actions will give you the best ROI:

- Stop using any electronic device an hour before bedtime and go to bed 30 minutes earlier than normal.
- Implement a morning ritual.
- Visualize all the negative consequences that might happen when you're about to skip a task or procrastinate.

Pillar 3: Attention - Stop Others from Hijacking Your Attention and You Will Achieve Your Goals

The third pillar of productivity is Attention. If you set aside time to work on your important project and have the energy to do so, you still won't get much done if you don't manage your attention and are constantly being distracted. You must be able to not only select the right tasks to work on, but also eliminate distractions and interruption so you can get them done. Attention is about working on what matters and staying on course as you create your ideal future. There are 3 components to attention: Focus, Goals, and Mindsets.

- Goals: You have clarity around what you want to accomplish
- Focus: Stay on task (without getting distracted) to achieve your goal
- Mindsets: develop the right mindsets to maximize your productivity

Goals

Goals are important because they function like a north star. It's a destination that you're going toward and you want to get there in the fastest way possible. This means we don't want to get lost along the way or take the long route —that would be a waste.

Once you have clarity around your goals, it's easy to get focused. The reason most people get distracted is that they have either no goals or they are unclear what their goals are. If your goal is to save $10,000 it becomes a lot easier to yes to anything that helps you save money. Likewise, it becomes easy to say no to anything will move you away from having $10,000 in your savings account. If we take the same analogy of earlier, having clear goals would equate to having a map of how you're going get to your destination in the shortest amount of time. You feel confident that you're going to arrive at your destination and being on time. On the other hand, with unclear goals, that's like driving in foggy weather without a map. You'll go slow, miss signs along the way and take the wrong turns more often than you like. You might end up at your destination but you'll definitely be late. When you have no goals at

all, that's like driving around in circles with no destination in mind. You're just wasting gas, time and energy going nowhere.

To bring that to a practical level: have you ever looked at your to-do list and felt like everything was equally important and needed to be done yesterday? If you have, you know that feeling. That's a sign that you have no clarity around your goals or you have no goals at all.

If you did, you would be able to prioritize everything. The next time you feel like everything is equally important, think back to your goals. What are they? Once you bring it to the front of your attention, you'll quickly realize that some tasks will take priority over others. In other words, if you can't prioritize your to-do list, you have no clarity around your goals.

When it comes to managing your attention, you want absolute clarity around your goals. They should excite you and be specific. Here are some of our best free resources to help you set and achieve goals:

- Goal Setting and Goal Getting: Having a Why
- Goal Setting the Asian Efficiency Way
- How to Write Your Goals To Make Them Achievable
- 3 Keys to Making This the Year Your New Year's Resolutions Finally Stick (TPS176)
- Eat That Frog —What All Successful People to Achieve Their Goals
- How to Achieve Your Goals with Any Task Management System

Focus

Most people that discover AE usually have a goal in mind. However, they struggle with achieving their goal even if they have the time and energy to accomplish it. Many people know what they need to do but get distracted from taking consistent action. They are Distracted. If you've ever told yourself over and over again that you "should" do something and you didn't follow through, you're also Distracted.

You need to get focused. Focus is what allows you to keep the main thing the main thing, making it easier to do the work and accomplish your goal. Once you have clarity around your goal, it's much easier to get focused. It's a skill everyone can learn.

If we had to break down what focus really is, we'll borrow a concept from Deep Work by Cal Newport. He defines "Deep Work" as the ability to focus without distraction on a cognitively demanding task. There are only two variables that you need to consider:

Time spent x Intensity of focus = Deep Work

Most of us can dedicate enough time to focus on something important but might miss the intensity of focus. Let me give you an example of this. In my apartment building, I have a gym that I usually go to three times a week. On my calendar, I have fixed times of when I go on Monday, Wednesday, and Friday. Every time I'm at the gym, I see the same guy. He's always there when I'm there. Since the beginning of the year, we've been going about the same number of times to the gym. Fortunately for me, I've been able to lose 20lbs and drop a lot of body fat so I could fit clothes from a few years ago. This guy, on the other hand, looks exactly the same. From the outside, his body composition isn't any different from earlier this year.

Why?! He spent the same amount of time as me at the gym! Wouldn't he be entitled to the same results? No. The difference was his intensity compared to mine. While I was running on the treadmill to Taylor Swift songs and lifting weights with my favorite Spotify playlists, this guy was checking his phone and browsing social media while walking on the treadmill. Our intensity was different. We put in the same amount of time in the gym but he didn't put any intensity in his workouts.

The same idea applies to focus: you need to factor in time and intensity. We would argue that intensity is the harder part to master because time is relatively easy to figure out (see our part 1 of this article series). You can do this by:

- Eliminating notifications and any other form of distraction
- Setting deadlines to create urgency
- Giving yourself shorter timelines to get things done (Parkinson's law)

To help you get focused, check out some of our best free resources below:

- The 5-Day Focus Challenge to Get You Focused
- 4 Strategies for Developing Your Focus Muscle and Creating the Future You've Always Dreamed of (TPS145)
- The Science of Focus Music
- 10 Powerful Apps To Help You Maintain Laser Focus

- 5 People Who Finally Got Focused and Sh*t Done

Action Steps

Now that you understand the importance of managing your attention, let's put this in actionable steps.

- Eliminate notifications as much as possible — email, text messages, instant messaging apps, and other apps. The fewer you have, the easier it will be for you to focus.
- Revisit your goal(s) right now. Do you have absolute clarity around your goal(s)? If not, redefine your goal(s).
- Schedule one task on your calendar right now to get you closer to accomplish your goal.

Mindsets

Here are some additional resources at AE to help you develop the right mindsets to maximize your productivity

- Change Your Mind, Change Your Life: How a Growth Mindset Leads You to Your Ideal Future (Podcast)
- The 10 Mindsets of Highly Productive People (Blog)
- Achieving Next-Level Productivity Through Cognitive Understanding (Podcast)
- Asian Efficiency's Core Values (Blog)
- Intentional Attention: How Small Decisions Can Bring You to Your Ideal Future (Podcast)

Where Do I Start?

Everyone who comes to Asian Efficiency for help is unique, but every productivity problem we help people solve can be traced back to one of these three areas, time, energy, and attention. Here are a couple tips to help you get started on addressing your own productivity problems so you can achieve your full potential and create your ideal future:

- If you're brand new to TEA framework, the place to start is probably Time. If you don't have time to do the things that will get you to your ideal future, it doesn't matter how much energy and attention you have.
- If you have time but still aren't happy with your results, look to improve your Energy. Once you have the time to do the things that will create your ideal future, you'll need to manage your energy well in order to take action.
- Once you have time and energy working for you, look to improve your attention. Being able to focus that energy in a specific direction will allow you to build consistency and momentum.

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1990

ADR Reporting intervention

Yi Tsong

**This article reflects the view of the author and should not be construed to represent FDA's views or policies.*
1990 is a year of many important events such as:

- February - Nelson Mandela was released after 27 years imprisonment in South Africa;
- April —United States placed the Hubble space telescope into orbit by shuttle Discovery;
- April —Wrecking crane began tearing down the Berlin Wall at the Brandenburg Gate after 30 years;
- July - 1,426 pilgrims trampled to death after a panic in a tunnel in Mecca, Saudi Arabia;
- August - US deploys troops to Saudi Arabia beginning Operation Desert Shield;
- August -UN security council authorizes military action against Iraq;
- September - Both East and West Germany ratify reunification;
- October - Reunification of East and West Germany. West German flag is raised above the Brandenburg Gate on the stroke of midnight.

In the same year, Mariah Carey started her long-lasting singing career after releasing her first album. The three tenors concert featuring Placido Domingo, Jose Carreras and Luciano Pavarotti recorded in Rome became the world's bestselling classical record at the time. Pop duo Milli Vanilli were stripped of their Grammy Award after it is learned they did not sing on their award-winning "Girl you know its true" album.

In the same year, Greta Garbo, one of the greatest female stars of classic Hollywood cinema died at 85. Martina Navaratilova won her 9th Wimbledon Women's Tennis competition.

It was also a great groundbreaking year of ICSA. After a few years of negotiation, in 1989 the ICSA Board decided to organize and plan the first ICSA Applied Statistical Symposium. As the president, Jia-Yeong Tsay decided to hold the symposium at the NIH campus in Bethesda, MD. He would serve as the chair of the Organization and Planning Committee. The Committee consisted of Drs. Jiann-Ping Hsu, George Chao, George Chi, Dar-Shong Hwang, Gorden Lan, Kao-Tai Tsai, Karl Lin, Shang-Shen Lao, Hoi Leung, Naitee Ting, Chiao Yeh and me. In addition, the Advisory Committee consisted of George Tiao, James Fu and Grace Yang. The symposium was held in Lipsett Auditorium with a cafeteria on the second floor. ICSA founding president Professor George Tiao opened the symposium with a short speech. The symposium had five sessions. There were about 80 attendees. The symposium finished at 6 O'clock. Drs. Lao and Karl Lin managed to prepare a reception featuring Mrs. Lao's Chinese desserts. This successful symposium was planned without any funding. Participants were mostly working and living on the East Coast. Without official travel funding, every participant drove to the symposium fueled with enthusiasm. Below are a few historical photos and reports of the event in 1990.

泛華統計協會

July 1, 1

ICSA 1990 Biopharmaceutical Statistics Symposium

簡　　報

蔡嘉永

經過將近五個月的周詳計劃與準備，本協會首度舉辦的 Biopharmaceutical Statistics Symposium終于今年4月21日在馬里蘭州的National Institutes of Health順利地舉行了。

開會當天雖然春雨綿綿，并不減低與會人士的熱誠與興趣。許多同仁們一大清早就從外州開車趕來，也有不少同仁前晚即已到達協會接洽的旅館。參加此盛會的人數比原先估計超過很多，還包括幾位來自臺灣和大陸的訪問學者。總共有80人左右與會。其中32位任職于Industry，23位服務于Government，21位來自Academiac，以及幾位后來的旁聽人士。

研討會在早上八點半開始注册報到，九點準時開幕。我們很榮幸地請到協會的Founding President，刁錦寶教授，爲我們致開幕詞。要特別感謝他的是，當晚在Michigan他有個必須前往的聚會，欲還肯把整個早上撥給我們，尤其在協會未能補助任何人旅費的情況下，更是難能可貴。

研討會分成五個Sessions.第一Session(林崑峰主持)的講題爲Statictical Methods in Animal Cercinogenicity Studies(林崑峰和孟雍康主講)；Stability of Drugs(林彩雲主講)。第二Session(季渝華主持)的講題爲Statistical Evaluation in Combination Drugs(季渝華、黃達雄、洪賢明和黃志華主講)。第三Session(莊易主持)的講題爲Overvi ew of Cancer Clinical Trials(陳達出講)；Overview of Clinical Trials of Medical and Radiological Devices(勞祥生主講)；Pastmerketing Surveillance Studies(李勁和莊易主講)。第四Session(藍光國主持)的講題爲Interim Analysis in clinical Trials(黃克歐主講)；Statistical Issues In multicenter Clinical Trials((梁海明主講)。最后是一個很特殊而難得的Session(李作言主持)，其講題爲How to Prepare to be a Manager in the Pharmaceutical Industry(趙騏主講)；Career Development and Dynamic Growth in the Pharmacutical Industry(李作言主講)。有許多與會人士對這個Session特別感興趣，會后還向我建議將李作言的講演內容印在我們的Newsletter上(我們很高興李作言已同意在明年初的會刊發表)。

研討會在下午六點圓滿地結束。接着是由勞祥生和林崑峰負責的Reception.他們在預

At FDA, I worked on a project to help one FDA medical reviewer to summarize his data collected in late 90s. I thought it is useful to bring it up here so that the readers will understand the nature of USA postmarketing safety reporting at that time. This data was published in 2003 in the article discussed below.

Improving the quality of adverse drug reaction reporting (Rosebraugh et al, 2003, Pharmacoepidemiology and Drug Safety).

The adverse drug reaction (ADR) reporting by medical and health handlers in the United States is voluntary, as opposed to mandatory health and insurance systems of social welfare regions where each health and medical handler is required by law to report the ADR. As a result, the common estimated reporting rate is no more than 10% of all ADRs. In the United States a national survey of medical schools revealed that 92% of respondents' institutions did not have mandatory clinical pharmacology rotations during the 3rd and 4th years of clinical training. This made exposure of these medical students to features of ADR reporting highly unlikely. With such a small reporting rate, the quality of reporting becomes essentially important.

Rosebraugh felt a quality reporting education intervention program is important. He and a group of medical and postmarketing safety reviewers designed a program and presented it to the 4th year medical students at the beginning of a required one-week clinical pharmacology rotation. The intervention consisted of a 15-minutes didactic presentation that covered the FDA's use of postmarketing ADR reports, the critical elements of a high quality of ADR report, and the value of physician reporting in protecting the public health.

SE initials _____ Report # _____ Report Cohort ____

MedWatch Report Completeness and Quality Survey Questionnaires

(Please rate the overall quality of data for each section by using the scale (1-5) with "5" as highest and "1" as lowest.)

A. Patient information-	1 2 3 4 5
1. Does it have *Age*?	YES NO
2. Does it have *Gender*?	YES NO
B. Adverse Event or Product Problem-	1 2 3 4 5
1. Does it have an *OUTCOME* checked?	YES NO
2. Is the *Description of Event* complete or satisfactory to understand the course of event occurrence?	YES NO
3. Does the *Relevant Laboratory Data* section contain necessary data to support the diagnosis?	YES NO
4. Does the *Relevant History* section contain necessary data to help in the assessment of the case?	YES NO
C. Suspect Medication(s)-	1 2 3 4 5
1. Does it have *Dose and Therapy duration*?	YES NO
2. Does it have *Indication*?	YES NO
3. Does it have *concomitant medication* listed?	YES NO
D. Reporter-	1 2 3 4 5
1. Does it have the reporter's full *name*?	YES NO
2. Does it have the reporter's *address*?	YES NO
3. Does it have *telephone #* to contact?	YES NO
E. Does it have ALL the following *minimum 4 data elements*- An identifiable patient; An identifiable reporter; A suspect drug or biological product; and An adverse event or fatal outcome	YES NO
F. Based on the quality and informativeness of the report, Whether or not you would categorize this PROBABLE a case, POSSIBLE a case, or UNLIKELY a Case?	YES NO
G. Overall Impression- Based on the information provided, do you think the overall Quality and completeness of this report for the purpose of Evaluation is acceptable?	1 2 3 4 5

Figure 1. Evaluation forms developed by FDA safety evaluators to rank MedWatch reports

Eighty-five medical students were individually randomized to an intervention group 'A' and a non-intervention Group 'B'. A 15-minute lecture/intervention program detailing the elements that constitute quality reporting was developed by FDA MedWatch personnel as a single program to all students of Group 'A'. Immediately after the intervention, Group 'B' students were allowed into the auditorium and both Group 'A' and Group 'B' students observed a 10-minute videotape of a standardized patient interview developed by the Clinical Pharmacology faculty of Georgetown University, which detailed a recognizable ADR case. Both groups then completed MedWatch forms anonymously ex-

cept for group identifiers. The form is attached in Figure 1. A team of four FDA safety evaluators then rated all the student responses in a blind fashion. The forms were rated for Overall Impression and were also rated for six domains, each with multiple subdomains. The average of the four evaluators was assigned question on each individual form. The impact of the intervention on report quality was assessed on the group mean of the average score.

The result of the comparison was that the Overall Impression scores for the intervention group (mean = 3.06) were statistically significantly higher than the non-intervention group (mean=2.60). The domain of Adverse Event or Product Problem was also significantly higher in the intervention group (mean=3.246) versus 2.863 of non-intervention group.

This study demonstrated that as little as a 15-minute intervention can significantly improve the overall quality of ADR reporting on a standard MedWatch form.

Dr. Curtis Rosebraugh joined FDA as a medical reviewer in year 2000. He later served as the Director of the Office of Drug Evaluation II, and had the responsibilities for the evaluation of all drug products of three divisions: The Division of Pulmonary, Allergy and Rheumatology Products, the Division of Metabolism and Endocrinology Products and the Division of Anesthesia, Analgesia and Addiction Products. He retired from FDA in 2018.

1991

False alarm rate of increase frequency of Adverse reaction reporting

Yi Tsong

**This article reflects the review of the author and should not be construed to represent FDA's views or policies.*
Do you remember the top news of 1991? Below is a partial list of what happened in 1991.

- Jan 9 Baseball officially bans Pete Rose from being elected to Hall of Fame for betting on baseball
- Jan 17 Operation Desert Storm begins, with US-led coalition forces bombing Iraq, during the Gulf War
- Feb 28 Gulf War ends after Iraq accepts a ceasefire following their retreat from Kuwait
- Mar 3 Los Angeles police officers severely beat motorist Rodney King, the beating is famously captured on amateur video and later leads to riots when the police officers are acquitted
- Mar 19 NFL owners strip Phoenix of 1993 Super Bowl game due to Arizona not recognizing Martin Luther King Day
- Mar 20 Michael Jackson signs $65M 6 album deal with Sony records
- Apr 29 Cyclone strikes the Chittagong district in Bangladesh, killing 139,000 people and leaving 10 million homeless
- Jun 15 Climactic eruption of the Mount Pinatubo volcano in the Philippines, the second-largest volcanic eruption on Earth of the 20th century
- Jun 18 "(Everything I Do) I Do It for You" single released by Bryan Adams (Billboard Song of the Year 1991)
- Jun 19 Colombian drug lord Pablo Escobar surrenders to police
- Jul 10 Boris Yeltsin sworn in as 1st elected President of the Russian Federation
- Aug 6 Tim Berners-Lee releases files describing his idea for the World Wide Web. WWW debuts as a publicly available service on the Internet
- Aug 19 Conservative members of the Communist Party of the Soviet Union attempt to depose Mikhail Gorbachev in a coup d'état

Freddie Mercury (born Farrokh Bulsara; 5 September 1946 —24 November 1991) was a British singer, songwriter, record producer, and lead vocalist of the rock band Queen. Regarded as one of the greatest lead singers in the history of rock music, he was known for his flamboyant stage persona and four-octave vocal range. Born to Parsi parents from

India, he attended English-style boarding schools in India from the age of eight and returned to Zanzibar after secondary school. In 1964, his family fled the Zanzibar Revolution, moving to Middlesex, England. Having studied and written music for years, he formed Queen in 1970 with guitarist Brian May and drummer Roger Taylor. Mercury wrote numerous hits for Queen, including "Killer Queen", "Bohemian Rhapsody", "Somebody to Love", "We Are the Champions", "Don't Stop Me Now", and "Crazy Little Thing Called Love". He also led a solo career and served as a producer and guest musician for other artists. Mercury died at age 45 due to complications from AIDS. He confirmed the day before his death that he had contracted the disease. As a member of Queen, Mercury was posthumously inducted into the Rock and Roll Hall of Fame in 2001, the Songwriters Hall of Fame in 2003, and the UK Music Hall of Fame in 2004. In 1990, he and the other Queen members were awarded the Brit Award for Outstanding Contribution to British Music, and one year after his death Mercury was awarded it individually. In 2005, Queen were awarded an Ivor Novello Award for Outstanding Song Collection from the British Academy of Songwriters, Composers, and Authors. In 2002, Mercury ranked number 58 in the BBC's poll of the 100 Greatest Britons.

Now back to my working experience with FDA, as part of the drug marketing requirements, the drug sponsor needs to file a report if the adverse drug reaction (ADR) rate (number of reports per unit of usage) increases so that FDA can evaluate, verify and revise the ADR rate of the reaction accordingly. For this reason, FDA recommends a statistical procedure to determine if there is evidence to support the claim. AIthough a statistical procedure was recommended in the 1985 FDA Draft Guidance. The sponsors chose to use various procedures proposed in the literature. In 1990, I was assigned to evaluate all the potential procedures and make a recommendation accordingly. In 1992, I published the results of the project in the Journal of Biopharmaceutical Statistics (JBS). It was my first statistical article published as a single author. It was also the starting of my long career publishing statistical articles in JBS. A description of the work is given in the following few paragraphs.

In 1992 FDA published a revised Draft Guideline for Postmarketing Reporting of Adverse Drug Reactions. Included in the guideline was a statistical procedure to determine of whether a significant increase in reports of ADRs has occurred. For drug marketed for less than 3 years, the "reporting interval" is the most recent quarter of marketing and the "comparison interval" is the interval from initial marketing until the day preceding the "reporting interval". After the first 3 marketing year, the "reporting interval" is the most recent year of marketing, and the "comparison interval" is the year preceding the "reporting interval". In order to make a recommendation of the statistical procedure, I evaluated six procedures proposed by statisticians or used by the sponsors. Below I describe the procedures with the notation given below.

Let

X_r, X_c = the random variables representing the number of ADRs reported in the reporting Interval and comparison interval, respectively;

x_r, x_c = the observed number of ADRs reported in the reporting Interval and comparison interval, respectively;

x_t = total number of ADRs reported in the reporting Interval and comparison interval combined;

s_r, s_c = the estimate of sales volume the reporting Interval and comparison interval, respectively;

s_t = estimate of total volume sold in the reporting Interval and comparison interval combined;

R = ratio of sales, s_r/s_c;

PR = proportion of estimate of sales volume in reporting interval, s_r/s_c;

D_r, D_c = the reporting rates in the reporting interval and comparison interval, respectively, i.e., $D_r = E(X_r/s_r), D_c = E(X_c/s_c)$;

The notation can be represented in the two-by-two table below

	Time interval		
	Reporting	Comparison	Total
ADRs	x_r	x_c	x_t
Sale	s_r	s_c	s_t

Assume X_r and X_c follow Poisson distributions with expected values E_r and E_c respectively. We need to test the null hypothesis $H_0 : E_r = RE_c \, vs. \, H_a : E_r > RE_c$.

The first procedure is the 1985 Guidance procedure. Let $d_r = x_r/s_r$ and $d_c = x_c/s_c$, the normal approximated 90% confidence interval of $(D_r - D_c)$ is

$$[d_r - d_c - Z_{0.95}\sqrt{d_r(1-d_r)/s_r + d_c(1-d_c)/s_c},$$
$$d_r - d_c + Z_{0.95}\sqrt{d_r(1-d_r)/s_r + d_c(1-d_c)/s_c}]$$

A significant increase of ADR reports if

$$[d_r - d_c - Z_{0.95}\sqrt{d_r(1-d_r)/s_r + d_c(1-d_c)/s_c} > 0.$$

The second procedure is the binomial procedure as proposed by Norwood and Sampson (1988, Statist Med). Conditioning on x_t, the conditioning distribution of X_r under the null hypothesis is a binomial distribution with $n = x_t, p = PR$.

Therefore, the 0.05 level critical value C is the smallest x' such that
$\sum_{x=x'}^{x_t} \binom{x_t}{x} PR^x(1-PR)^{x_t-x} \leqslant 0.05$
A significant increase is concluded if $x_r \geqslant C$.

The third procedure is a revision of the normal approximation test proposed by Norwood and Sampson. Norwood and Sampson proposed a normal approximation of the binomial test through Fisher's exact test under the assumption that the sale volume is sufficiently large. For testing H_0 : $D_r = D_c$, the 90% acceptance region is
$[d_c - Z_{0.95}\sqrt{d_t(1-d_t)(1/s_r + 1/s_c)},$
$d_c + Z_{0.95}\sqrt{d_t(1-d_t)(1/s_r + 1/s_c)}]$
That means pooling d_r and d_c for the estimation of the standard error of $d_r - d_c$ used in 1985. Here it is replaced by using $d_t = x_t/s_t$ under the null hypothesis.

The fourth procedure is to use Yate's continuity correction with formula (3), the 90% acceptance region is
$[d_c - Z_{0.95}\sqrt{d_t(1-d_t)(1/s_r + 1/s_c)} - (1/s_r + 1/s_c),$
$d_c + Z_{0.95}\sqrt{d_t(1-d_t)(1/s_r + 1/s_c)} + (1/s_r + 1/s_c)]$
In pharmacoepidemiological studies, log(incidence density ratio) is frequently used to introduce symmetry and to attain better normal approximation when the number of cases is small.

The fifth procedure is based on such transformation, with the 90% acceptance region of $log[D_r/(RD_c)]$ being
$[-Z_{0.95}SD\{log(d_r/Rd_c)\}, Z_{0.95}SD\{log(d_r/Rd_c)\}]$
Based on this, a significant increase is concluded if
$x_r > exp[log(log(R)) + log(d_c) + Z_{0.95}\sqrt{1/d_r + 1/d_c}]$

The sixth and last procedure is based on normal approximation of the square root transformed Poisson variable as proposed by Freeman and Tukey (1950) to stabilize the variance estimation of a binomial variable with small proportion. Let X be a Poisson variable, then $\sqrt{X} + \sqrt{X+1}$ is distributed as $N((\sqrt{m} + \sqrt{m+1}), 1)$. The sponsor used Rx_c to estimate x_c', the observed value under null hypothesis. The critical value of normal approximation with variance stabilizer is
$[y_c^4 - 2y_c^2 + 1]/[4y_c^2]$
Where $y_c = \sqrt{Rx_c} + \sqrt{Rx_c + 1} + Z_{0.95}\sqrt{2}$

The six procedures were compared through a simulation study with the data generated from a Poisson distribution with mean equal to Lambda = 2(1)9 and R=0.25(0.25)1(0.5)4(1)6.

It shows that the 1985 Guidance procedure has type I error rate greater than 5% across all combinations of Ex_r and R (ratio of sales in reporting interval to the reference interval). But the deviation from 5% decreases when Ex_r increases. The study also shows that procedure 2 (Norwood and Sampson) is conservative for any combination of Ex_r and R. Procedure 3 (1991 FDA Draft Guidance procedure) is also conservative with type I error rate less than 5% but comparatively it is closest to 5% for all R FDA> 0.5 or $Ex_r > 4$. Procedure 4 is the 1991 FDA Draft Guidance plus Yate's continuity correction. It behaves as conservative as procedure 2. Procedure 5 has type I error rate much smaller than 5% but it outperforms other procedures when both Ex_r and R are small. Procedure 6 is conservative when R is small. It inflates type I error rate otherwise. Based on the results of the simulation study, procedure 3 outperforms other procedures in general.

For details of the simulation study, please refer to "False Alarm Rates of Statistical Methods Used in Determining Increased Frequency of Reports on Adverse Drug Reaction", by Yi Tsong, Journal of Biopharmaceutical Statistics. 1992. 2(1), 9-30).

In 1997, after discussion at the ICH (International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use) conference, FDA decided to re-issue the postmarketing adverse event reporting guidance titled "Postmarketing Adverse Experience Reporting for Human Drug and Licensed Biological Products: Clarification of What to Report". Along with the removal of other information, the statistical method of determining for increased frequency of adverse reaction to report was also removed due to the fact that most of the sponsors made the IFR reporting regardless if there is indeed a statistically significant increased reports in order to avoid any potential penalty.

Twenty-one years later, in the 2018 Joint Statistical meetings, I was surprised to see a student presenting a research report on how to determine increased frequency of reporting without using information of prescription numbers. I can't help but wondering how come the topic becomes interesting again.

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Travel

Hans Rudolf Künsch

There are many reasons for an academic to travel: Large and small conferences, seminars, short courses and the like are ideal places to present your recent and ongoing work to an interested audience, to learn about the work of others and about exciting new developments early, to give and to obtain feedback, to start new collaborations and to extend your personal network. At a later stage in their career, many people travel also for administrative purposes, e.g. to participate in evaluation, planning and hiring committees.

During my career, I have traveled to many places, both work-related and personal. Fortunately, ETH Zurich allowed me to combine these two types of trips which enriched me not only in my research, but also in my interests in culture and nature. Usually I have limited the number of intercontinental trips to one or two per year and trips within Europe to less than five per year. I profited a lot, not only from my own travel, but also from people coming to visit ETH Zurich. I hope that others also have profited by my contributions, especially when I taught a short course somewhere.

Ideally, everybody gains from face-to-face contacts made possible by traveling: Learning about new developments by attending well prepared talks and having the opportunity to ask questions is usually more efficient than looking at the slides, a video or a preprint. Personal interactions are much more enjoyable and informative than email exchanges or Skype calls because of lack of time pressure and the presence of non-verbal communication. However, there are also non-negligible material and immaterial costs from travel. Transport and accomodation can be costly and funds to cover them are not always available. This is especially an issue for scientists working outside of Europe and North America where most of the conferences take place. However, many societies and some conferences offer support; IMS has for instance travel awards for students and young researchers. A second type of cost is stress due to preparation of lectures or a poster, making arrangements for teaching obligations at home during the absence, jetlag, delayed flights or stomach problems. Then there are the personal costs if you have a partner or children, and finally travel is a significant source of greenhouse gas emissions. A study estimates that business trips account for more than half of ETH Zurich's green house gas emissions. There is even a small, but growing group of scientists who do not fly at all or fly less, see `https://noflyclimatesci.org/`. A document of ETH Zurich entitled "Stay grounded, keep connected" states as its goal "to reconcile world-class research and teaching with more sustainable travel behaviour without compromising the carrier chances of young scientists."

So what should you do? An obvious advice is to carefully and consciously select which events to attend. As a young researcher try to assess objectively what you will gain from attending a conference or a workshop and what the costs due to stress are. As commitments and registrations for conferences are usually made several months in advance, one tends to be overly optimistic concerning the latter. So talk about your plans with your partner early and also ask a senior colleague about the advantages and disadvantages of the conferences you consider. As a senior researcher you often find that you are getting many invitations to conferences and seminars. In that case you cannot avoid to occasionally decline, but in this decision you should also think about giving something back to younger people out of gratitude for what you obtained earlier in your career.

If traveling is difficult for you because of family, a solution can be a longer research visit of several weeks or a whole sabbatical where the family can join you. This will allow you not only to obtain new stimuli and ideas for research, but also to experience a different culture and way of life.

The next important thing is to make the most out of any trip: Carefully look at the schedule of talks at a conference and attend other sessions than the one where you are talking. Be driven by curiosity and occasionally listen also to a talk on a subject you are not working on. Don't hesitate to ask questions after the talks or during the breaks. Attend also the social events as they are an opportunity to meet new people. Often there is a possibility to combine two visits, e.g. a young researchers meeting that takes place before or after the main meeting or a satellite meeting to a large conference. Another example is the Oberwolfach Institute in Germany which "supports up to 40 Simons Visiting Professors, distinguished junior or senior scientists from outside Europe, who wish to combine an invitation to an Oberwolfach Workshop with a research visit to a European university of up to two weeks".

In order to address the issues of sustainability and accessibility, the R foundation is developing

a new conference model with "useR! hubs" running in parallel to the main useR! conference on other continents, see https://www.r-project.org/useR-2021_call.html. I find this a vey interesting idea, and I wonder how conferences will be organized in 2030 or 2040.

For other views on the topic of travel, you can read also the column by Terry Speed with the same title, published in the IMS Bulletin of October 2013, see https://imstat.org/ims-bulletin-archive.

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Speaking, reading, writing

Terry Speed

Editorial: This is a reprint from a column article published in the *IMS Bulletin* (Volume 40, Issue 6, September 2011; https://imstat.org/2011/09/09/terences-stuff-speaking-reading-writing/) with the IMS' permission.

In our business, communication is important. It is no exaggeration to say that in our careers we sink, tread water or swim according to our ability to communicate. Suppose that you are giving a presentation, and I am in your audience. At the start, you have my complete attention. I come expecting and hoping for a good experience, to learn something from you, and to enjoy myself. If I understand the words you use, the sentences you form, and the chains of reasoning you construct, and if I can read and follow the material you display, there is a good chance I'll stay with you, perhaps to the end. If I struggle with any of these aspects of your presentation, I'll expect extra value for the extra effort. Otherwise, I'll probably tune out.

Communication is a two-way process most of the time, but not when you're in front, and I'm at the back. The onus is on you to lure me, hook me, draw me in, and eventually to land me. Actors, politicians, salespersons and evangelists all know this; so should we.

Suppose that you have written a paper and I am one of your potential readers. Your title catches my attention. "This looks interesting," I think, and I read the abstract. Is this paper worth reading carefully, I wonder, as I read through the introduction. Do you get—and keep—my attention, as you might if we were face to face? That depends, both on my need to read your paper, and on your writing. Again it is your words, sentences, and chains of reasoning that matter, and again, I'll stay with you if I'm learning and enjoying myself···and drift away if I'm not.

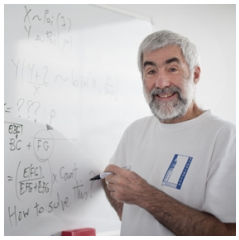
Few of us are naturally gifted speakers or writers. Most have to work hard at it, and keep doing so. I'll assume that applies to you, as it does to me and almost everyone else I know. How do we improve our speaking and writing? One answer is by taking formal college or university courses, for example, on language and literature, public speaking, technical or creative writing. There we can get instruction, practice and feedback. I always encourage people for whom it is feasible to consider this option, that is, to seek professional help. Another approach is to dive into the "how to" books on speaking and writing, though I can't comment on the value of this strategy.

We can also help ourselves. There are two aspects to my self-help approach. One is like the way to get to Carnegie Hall—practice, practice, practice—and the other is reading. Ralph Waldo Emerson believed that first we read, then we write [the title of the Richardson book on Emerson] and gave the following writing tip: "Read for five hours a day." Most of us are unlikely to have our days as free for reading as his were, so for us the question is: what should we read? Life is short, so my answer here is unequivocal. Read only good writing for fun and profit, and read mediocre or poor writing only when absolutely necessary. Joseph Conrad, Jane Austen, G. H. Hardy and Marcia Angell all write magnificently. Articles in the New York Review of Books are invariably extremely well written, as are those in Granta. Several of our professional

colleagues wrote beautifully: Florence Nightingale David, William Feller, and David Freedman; and the mathematical and statistical biographer Constance Reid. Apologies here to speakers of other languages for my focus on English. I can mention Jacques Neveu or Paul-André Meyer as French masters of writing, but that's my limit in other languages. There is a lot of great writing out there, mostly by professional writers, of course, but they should be our role models. Read and emulate them.

Like Emerson, I see the reading of good writing as key to improving our speaking and writing. It helps us form what we want to say or write. Next comes the practice. Suppose you have a good first draft of your talk or paper. You now need feedback: how good is it, and in what ways can it be improved? Here is where you must rely on colleagues, friends or mentors, unselfish people who are willing to spend their time helping you improve your speaking or writing. Such people aren't as hard to find as you might think, but you should be prepared to return the favour. Once started, you then iterate the cycle of draft, receive feedback, revise. It's always hard, but there can be great satisfaction at the end: a talk well delivered, a paper flying through the review process. Let's give Emerson the last word: Happy is he ⋯who writes from the love of imparting certain thoughts ⋯who writes always to the unknown friend.

"The first rule of writing is not to omit the thing you meant to say." Sage advice from Ralph Waldo Emerson [above], who may still be able to teach us a thing or two about communication.



Terry Speed, Ph.D.
Professor and Lab Head
Bioinformatics Division
Walter & Eliza Hall Institute
of Medical Research
Parkville, Victoria
Australia

More Joy of Statistics, not (merely) Job of Statistics

Xiao-Li Meng

Editorial: Professor Xiao-Li Meng is the former Dean of the Graduate School of Arts and Sciences (2012-2018) and the Whipple V. N. Jones Professor of Statistics at Harvard University. He is well known for his depth and breadth in research, his innovation and passion in pedagogy, and his vision and effectiveness in administration, as well as for his engaging and entertaining style as a speaker and writer. He received the Committee of Presidents of Statistical Societies Award (COPSS Presidents' Award) in 2001 and was one of the first recipients of the ICSA Pao-Lu Hsu Award in 2013. This is a reprint from a column article published in the *IMS Bulletin* (Volume 44, Issue 7, October/November 2015; `https://imstat.org/2015/10/02/xl-files-more-joy-of-statistics-not-merely-job-of-statistics/`) with IMS' permission.

Xiao-Li Meng writes:

"I keep saying that the sexy job in the next 10

years will be statisticians." This prediction by Professor Hal Varian in January 2009 (in The McKinsey Quarterly) has been quoted so frequently that if I were him, I'd have been worried whether I'd be remembered for anything else that I said or did! Later that year, an NY Times headline was even more enticing: "For Today's Graduate, Just One Word: Statistics" (August 5, 2009). Any reputable statistician would be quick to point out the potential for self-fulfilling prophecy in such predictions; yet few statisticians would not rejoice at the exponential growth in the number of students entering statistics. As an example, for the past decade (2005—2014), the number of Harvard college students concentrating in statistics has grown steadily from 8 to 175.

And indeed "Statistics—the science of learning data—is the fastest-growing STEM undergraduate degree in the United States over the last four years" (Amstat News online, March 1, 2015), with a 95.2% growth since 2010. Much of this growth of course is due to "Big Data", no matter how the term is (un-)defined. Many more jobs now are out there for statisticians. Another local example: graduates from my department now can be found in almost all major internet-based firms (Google, Yahoo, eBay, Facebook, Dropbox, etc), as well as in Wall Street firms (e.g., the hedge fund Two-Sigma alone has hired six of our graduates in recent years).

Responding to such demand, the most recent ASA Curriculum Guidelines for Undergraduate Programs in Statistical Science (CGUPSS: `http://www.amstat.org/education/pdfs/guidelines2014-11-15.pdf`) emphasize much more equipping students with skills for employment: "The main goal of our recommendations is to ensure undergraduate statistics students remain useful in a world with increasingly more complex data. If we don't prepare them to learn new techniques and work with various forms of data, it will be difficult for them to compete for jobs." In contrast, the 2005 GAISE (Guidelines for Assessment and Instruction in Statistics Education) College Report (`http://www.amstat.org/education/gaise/GaiseCollege_full.pdf`) never mentioned the word "employment", and the word "job" appeared only in sentences such as "Your job is to sketch a graph…" (assuming, of course, that I did a perfect job of text mining).

Speaking of jobs, I was given the job of being a "provocative" discussant in the session on "Undergraduate Curriculum: The Pathway to Sustainable Growth in Our Discipline" at JSM 2015, where CGUPSS was featured, and its comparison to GAISE was made. Obligated to be provocative, I noted the absence of any emphasis on the "Joy of Statistics" in CGUPSS. Responding to the job market of course is important, but in order to sustain a healthy supply indefinitely, we will need to make engaging in statistical thinking and activities an innate pleasure. Our Mother Nature ensures the survival of the human species not by making us aware of our existence's essential role in the survival of the ecosystem (we are not), but by biologically wiring us to engage in eating and mating with physical pleasure. If we consider Eating and Mating as the E-step and M-step of the life-cycle EM algorithm to sustain us as biological beings in the stone age, then it's time to encode the S-step, "Statisticking", with the intellectual pleasure to sustain us as thoughtful beings in the digital age. Here "statisticking" encompasses all the necessary statistical thinking to survive the data tsunami, with its joy derived from an ultimate intellectual game: to guess wisely and to guess meaningfully the errors in our guesses.

Speaking of guessing, Hal Varian continued: "People think I'm joking, but who would've guessed that computer engineers would've been the sexy job of the 1990s?" —which hints that what is sexy this decade is not guaranteed to be sexy the next. Indeed, the number of CS concentrators at Harvard dropped steadily from 223 in 2000 to 74 in 2007, and then went up from 94 in 2008 to 316 in 2014, essentially tracing the CS job market going through tech-bubble bust, increased job outsourcing, and then the arrival of big data. Such large volatility awaits Statistics as well, if we put all our eggs in the "Job of Statistics" basket, without instilling the Joy of Statistics in our students.

Given its emphasis on deep intellectual pursuits, IMS seems well positioned to take on the task of promoting the Joy of Statistics as a critical step in sustaining the pipelines for our beloved profession.

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

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2020 ICSA Applied Statistics Symposium Short Courses

The 2020 ICSA Applied Statistics Symposium will be held from Sunday, May 17th to Wednesday, May 20th, 2020, at The Westin Galleria Houston, Houston, Texas, USA. (see https://symposium2020.icsa.org/). The Short Course Committee reviewed the submitted proposals and made the selection in coordination with Executive Committee of the conference. This conference features 4 half-day and 5 full-day short courses on Sunday, May 17th, covering a wide range of topics of high interest to our community.

Multivariate meta-analysis methods

Haitao Chu, MD, PhD, Professor of Biostatistics, University of Minnesota Twin Cities
Yong Chen, PhD, Associate Professor of Biostatistics, University of Pennsylvania
Duration: Half Day - morning
Abstract:
Comparative effectiveness research aims to inform health care decisions concerning the benefits and risks of different prevention strategies, diagnostic instruments and treatment options. A meta-analysis is a statistical method that combines results of multiple independent studies to improve statistical power and to reduce certain biases compared to individual studies. Meta-analysis also has the capacity to contrast results from different studies and identify patterns and sources of disagreement among those results. The increasing number of prevention strategies, assessment instruments and treatment options for a given disease condition have generated a need to simultaneously compare multiple options in clinical practice using rigorous multivariate meta-analysis methods.

This short course, co-taught by Drs. Chu and Chen who have collaborated on this topic for more than a decade, will focus on most recent developments for multivariate meta-analysis methods. This short course will offer a comprehensive overview of new approaches, modeling, and applications on multivariate meta-analysis. Specifically, the instructors will discuss the contrastbased and arm-based network meta-analysis methods for multiple treatment comparisons; network meta-analysis methods for multiple diagnostic tests; and multivariate meta-analysis methods estimating complier average causal effect in randomized clinical trials with noncompliance.

Case studies will be used to illustrate the principles and statistical methods introduced in this course. This application oriented short course should be of interest to researchers who would apply up-to-date multivariate meta-analysis methods. We anticipate that it will be well-received by an interdisciplinary scientific community, and play an important role in improving the rigor and broadening the applications of multivariate meta-analysis.
About the instructors:

Dr. Chu is Professor of Biostatistics at University of Minnesota Twin Cities. He is an ASA Fellow and elected member of the Society for Research Synthesis Methodology since 2016. Dr. Chu's research lies at the intersection of biostatistics and epidemiology, with a recent focus on multivariate research synthesis methods. Dr. Chu has published over 170 peer-reviewed articles2 with over 10,000 Google Scholar citations. Specifically, Dr. Chu has published over 50 peerreviewed manuscripts on systematic reviews and meta-analysis in top ranked statistical and medical journals such as JASA, Biometrics, Biostatistics, SIM, SMMR, BMJ, Clinical Trials, JNCI, AIDS, Epidemiology and AJE. Dr. Chu's research on innovative statistical methods improve metaanalysis has been supported by 8 grants from FDA, AHRQ, NIAID, NIDCR and NLM as the principal investigator. Dr. Chu serves as an Associate Editor for Journal of the American Statistical Association, the American Journal of Epidemiology, and Statistics and Its Interface.

Dr. Yong Chen is Associate Professor of Biostatistics at University of Pennsylvania. He directs a Computing, Inference and Learning Lab at University of Pennsylvania, which focuses on integrating fundamental principles and wisdoms of statistics into quantitative methods for tackling key challenges in modern biomedical data. Dr. Chen is an expert in synthesis of evidence from multiple data sources, including systematic review and meta-analysis, distributed algorithms, and data integration, with applications to comparative effectiveness studies, health policy, and precision medicine. He is also working on developing methods to deal with suboptimal data quality issues in health system data, dynamic risk prediction, pharmacovigilance, and personalized health management. He has over 100 publications in a wide spectrum of method-

ological and clinical areas. He has been principal investigator on a number of grants, including R01s from the National Library of Medicine and National Institute of Allergy and Infectious Diseases, and Improving Methods for Conducting Patient-Centered Outcomes Research grant from Patient-Centered Outcomes Research Institute. He is an elected fellow of the Society for Research Synthesis Methodology, and the International Statistical Institute

Including historical data in clinical trial design and analysis

Frank Fleischer, PhD, Head of Methodology Statistics, Boehringer-Ingelheim Pharma GmbH & Co. KG
Martin Oliver Sailer, PhD, Methodology Expert Statistician, Boehringer-Ingelheim Pharma GmbH & Co. KG
Duration: Half Day —morning
Abstract:
With the growing number of targeted drug development programs, there is an ever increasing interest to make these programs more cost effective. Borrowing of information from historical data allows to reduce the number of patients recruited to new trials and helps to bring new therapies to patients faster. Participants will learn requirements for the use of historical data in clinical trial design and analysis. It will be shown how Bayesian hierarchical models can be used to borrow information from historical data and perform Bayesian evidence synthesis with metaanalytic predictive priors. Advantages of dynamic weighting will be motivated. Since the population in the historical data and the new study may differ, propensity score methods and methods for covariate adjustment need to be considered. Case studies will be presented for examples from dose finding in oncology, basket trials and go/no-go decision making after phase II. Considerations for confirmatory settings will be addressed. Participants will be able to implement methods with computer exercises.
About the instructors:
Dr. Frank Fleischer
Being a trained mathematician and statistician Frank has worked for more than 10 years in the pharmaceutical industry. He is heading a global team of statisticians at Boehringer Ingelheim focusing on statistical methodology and the implementation of innovative statistical designs into practice. In that role, Frank and his team are considered with methodological questions regarding adaptive designs, statistical decision making, dose finding and Bayesian borrowing designs as well as with piloting these methods in clinical trials. Through this function several projects across different therapeutic areas and phases are supported. Formerly he has been a lead project statistician for different projects in oncology, immunology and the biosimilars.
Dr. Martin Oliver Sailer,
With nine years of experience in the pharmaceutical industry, he has been Statistical lead for multiple pivotal Oncology and Biosimilar development programs. His consulting work focuses on introducing Bayesian methods in all phases of clinical development. His research interests include Design of Experiments, Bayesian Statistics, Basket designs, Statistical Go/No-Go decision making, and Estimands. He studied Statistics at TU Dortmund University in Germany and Iowa State University, Ames, IA.

Short Course on Absolute Risk Prediction

Mitchell H Gail, MD, PhD, Senior Investigator Biostatistics Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH
Ruth Pfeiffer, PhD, Senior Investigator Biostatistics Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH
Duration: Full Day
Abstract:
Absolute (or "crude") risk is the probability that an individual who is free of a given disease at an initial age, a, will develop that disease in the subsequent interval (a, t]. Absolute risk is reduced by mortality from competing risks. Models of absolute risk that depend on covariates have been used to design intervention studies, to counsel patients regarding their risks of disease and to inform clinical decisions. This course will define absolute risk and discuss methodological issues relevant to the development and evaluation of risk prediction models. Various study designs and data for model building will be presented, including cohort, nested case-control, and case-control data combined with registry data. Issues relating to the evaluation of risk prediction models and the strengths and limitations of risk prediction models for various applications will be discussed. Standard criteria for model assessment will be presented, as well as loss function-based criteria applied to the use of risk models to screen a population and the use of risk models to decide whether to take a preventive intervention that has both beneficial and adverse effects. Methods for

validating models in independent data when some predictors are missing are presented. Finally, updating risk models when information on new predictors becomes available will be discussed.

About the instructors:

Dr. Mitchell H. Gail is a Senior Investigator at the Biostatistics Branch of the Division of Cancer Epidemiology and Genetics, National Cancer Institute (NCI). Dr. Gail's current research interests include statistical methods for the design and analysis of epidemiologic studies, and the development and application of models to predict the absolute risk of disease. Dr. Pfeiffer and Dr. Gail recently wrote a book entitled "Absolute Risk: Methods and Applications in Clinical Management and Public Health" . Dr. Gail served as President of the American Statistical Association and is a member of the National Academy of Medicine.

Dr. Ruth Pfeiffer is a tenured senior investigator at the Biostatistics Branch of the Division of Cancer Epidemiology and Genetics (DCEG), National Cancer Institute (NCI). She received an M.S. degree in applied mathematics from the Technical University of Vienna, Austria, an M.A. degree in applied statistics and a Ph.D. in mathematical statistics both from the University of Maryland, College Park. At NCI she is an active collaborator on many research projects and mentors several fellows and junior investigators. Her research focuses on statistical methods for absolute risk prediction, problems arising in molecular and genetic epidemiologic studies and the analysis of data from electronic medical records. She is the recipient of a Fulbright5 Fellowship, an elected Member of the International Statistical Institute, and an elected Fellow of the American Statistical Association.

Utilizing Real-World-Data and Real-World-Evidence in Drug Development and Evaluation

Binbing Yu, PhD, Associate Director, AstraZeneca Oncology Biometrics Bo Lu, PhD, Professor, Ohio State University (OSU), Division of Biostatistics College of Public Health
Qing Li, PhD, Senior Statistician, Takeda Pharmaceutical Company

Duration: Full Day

Abstract:
In recent years, the rapid increase in the volume, variety, and accessibility of digitized RWD and RWE has presented unprecedented opportunities for the use of RWD and RWE throughout the drug product lifecycle. In clinical development, RWD and RWE have the potential to improve the planning and execution of clinical trials, and create a virtual control arm for a single arm for accelerated approval and label expansion. From the product lifecycle perspective, effective insights gleaned from RWE bring about informative relative benefits of drugs, comparative effectiveness, price optimization, and new indications.

The goal of the short course is to serve as resources for practitioners who wish to apply these modern statistics and analytics in drug research and development. This short course will cover the essential statistical methodology for causal inference and recent practical case studies that adopted RWD and RWE in the clinical development and evaluation. In the morning session, we will introduce the current trend, challenges and opportunities of RWD and RWE in drug development and evaluation. We will also provide a comprehensive review of the relevant statistical methods for treatment effect estimation using non-randomized data, including propensity score matching/stratification/weighting and sensitivity analysis. In the afternoon session, we will illustrate how to apply advanced statistical tools to practical case studies, including RWD and RWE in the clinical development and post-marketing drug development.

About the instructors:

Dr. Binbing Yu is an Associate Director in the Oncology Statistical Innovation group in AstraZeneca. He serves as the statistical expert across the whole spectrum of drug R&D process, including early-clinical and clinical research, design, operation and manufacturing, clinical pharmacology, oncology medical affairs and post-marketing surveillance. He obtained his PhD in Statistics from the George Washington University. His primary research interests are clinical trial design and analysis, cancer epidemiology, cause inference in observation studies, PK/PD modeling and Bayesian analysis. He was previously the Biometry Section Chief in the National Institute on Aging. He has nearly 80 publications in scientific and statistical journals and published a book on statistical methods on immunogenicity.

Dr. Bo Lu is a Professor of Biostatistics in the College of Public Health, the Ohio State University. He obtained his PhD in Statistics from the University of Pennsylvania. His primary research interest covers causal inference with observational data, matching/weighting adjustment for complex designs including multiple treatment arms, time-varying treatment initiation, with complex survey weights, etc. Bayesian nonparametric modeling for

heterogeneous causal effects, and statistical methods for survey sampling. He has been PIs for both federal and localfunded research grants on causal inference methodology. He has served as the lead statistician for the Ohio Medicaid Assessment Survey series since 2008. He also has extensive collaborations with Pharmaceutical industry on utilizing causal inference methods to leverage RWD in drug discovery.

Dr. Qing Li is a senior statistician in the statistical methodology group under the statistics and quantitative science (SQS) department at Takeda Pharmaceutical Company. His responsibilities include statistical methodology development and consultation for real-world-evidence (RWE) and advanced adaptive design from proof-of-concept to late phase studies across multiple therapeutic areas including oncology, gastroenterology (GI), rare disease, and vaccine. His research interests include propensity score (PS) methods, RWE, adaptive designs (sample size re-estimation, subgroup enrichment design, seamless design), Immuno-Oncology (IO) design and surrogate endpoints. He obtained his MS and PhD degree in biostatistics from the University of Iowa.

Empower Statistician with Spark, Machine Learning and Deep Learning

Hui Lin, PhD, Head of Data Science at Netlify
Ming Li, PhD, Research Scientist at Amazon
Duration: Full Day
Abstract:
Data can be a valuable asset, especially when there's a lot of it. Exploratory data analysis, business intelligence, and machine learning can benefit tremendously if such big data can be wrangled and modelled at scale. Apache Spark is an open-source distributed engine for querying, processing and modeling big data. In this one-day workshop, you will learn how to leverage Spark and R/Python to process and model big data with common machine learning algorithm. By the end of this workshop, you will have a solid understanding of how to process big data using Spark and how to build common machine learning models in the cloud environment. You will also learn the motivation and use cases of deep learning through handson exercises. This workshop is designed for audience with statistics education background. This course bridges the gap between traditional statisticians and data scientists. No software download or installation is needed, everything is done through laptop's internet browser (Chrome or Firefox) with Databricks free cloud environment.
About the instructors:

Hui Lin is the head of data science at Netlify where she is leading and building the data science department. Before Netlify, she was a Data Scientist at DuPont. She provided data science leadership for a broad range of predictive analytics and market research analysis from 2013 to 2018. She is the co-founder of Central Iowa R User Group, blogger of https://scientistcafe.com/, and 2018 Program Chair of ASA Statistics in Marketing Section. She enjoys making analytics accessible to a broad audience and teaches tutorials and workshops for practitioners on data science (`https://course2019.scientistcafe.com/`). She holds MS and Ph.D. in statistics from Iowa State University.

Dr. Ming Li is currently a Research Scientist at Amazon. He organized and presented 2018 JSM Introductory Overview Lecture: Leading Data Science: Talent, Strategy, and Impact. He was the Chair of Quality & Productivity Section of ASA. He was a Data Scientist at Walmart and a Statistical Leader at General Electric Global Research Center before joining Amazon. He obtained his Ph.D. in Statistics from Iowa State University in 2010. With deep statistics background and a few years' experience in data science and machine learning, he has trained and mentored numerous junior data scientist with different backgrounds such as statistician, programmer, software developer, database administrator and business analyst. He is also an Instructor of Amazon's internal Machine Learning University and was one of the key founding members of Walmart's Analytics Rotational Program.

Estimands and Statistical Methods for Missing data in Clinical Trials

Frank Liu, PhD, Distinguished Scientist, Merck & Co.
Mandy Jin, PhD, Director of Clinical Statistics, AbbVie Inc.
Duration: Half Day - afternoon
Abstract:
In longitudinal clinical trials, data may be missing due to intercurrent events such as missing visits or early discontinuation. The strategies discussed in ICH E9 (R1) addendum for handling intercurrent events requires clearly defined estimands and associated assumptions about missing data. To evaluate the underline treatment effects of an investigational new drug or biologics, it is desirable to consider estimands that can define an attributable causal inference for outcomes. Properly analyzing missing data

with appropriate methods is critical to assess the attributable estimands.

Commonly used approaches for missing data assume data are missing at random (MAR) and analyze data using likelihood-based methods or multiple imputations (MI). Because the MAR assumption is often difficult to justify, both regulatory agencies and industry sponsors have been seeking alternative approaches to handle missing data under missing not at random (MNAR) assumption, which estimates attributable estimands while excluding potential confounding.

This half-day tutorial is intended to cover various methods that have been advocated in dealing with missing data and illustrates how to implement the analyses methods using examples. The tutorial begins with a review of estimands associated with missing data, followed by an overview of conventional methods for missing data handling such as maximum likelihood methods, multiple imputation, generalized estimation equation approaches, and Bayesian methods. The rest of the course is devoted to recently developed methods, including control-based imputation, tipping point analysis, and some methods developed by the instructors. Real clinical trial examples will be presented for illustration with implementation of the analysis using SAS software, including the MIXED, MI, MIANALYZE, GEE, and MCMC procedures.

About the instructors:

Dr. G. Frank Liu is a distinguished scientist at Merck & Co., Inc. and a Fellow of the American Statistical Association (ASA). For more than 24 years at Merck, Frank has gained extensive industry working experiences. His research interests include methods for longitudinal trials, missing data, safety analysis, and noninferiority trials; and has published more than 40 peerreviewed statistical papers. He has been leading the development of many methodological guidance documents within Merck. He has taught short courses previously at Deming conferences, Biopharmaceutical Regulatory-Industry workshops, ASA conference on statistical practice, and conferences of the International Society of Biopharmaceutical Statistics.

Dr. Mandy Jin is currently a Director of Clinical Statistics at AbbVie Inc. She has gained 12 years of experience in clinical research across different therapeutic areas since she obtained her PhD in statistics from Columbia University in 2008. Her research interests include statistical methodologies for clinical trials, such as missing data, Bayesian analysis, adaptive designs, multiplicity adjustment, and machine learning. She has published more than 20 peer-reviewed statistical papers in these topics.

Statistical Remedies for Flawed Conventions in Medical Research

Peter F. Thall, PhD, Department of Biostatistics, The University of Texas MD Anderson Cancer Center

Duration: Half Day - afternoon

Abstract:

Many statistical methods commonly used for data analysis or clinical trial design by medical researchers are severely flawed. Unfortunately, some of these dysfunctional statistical conventions and paradigms are deeply embedded in the medical research community, and have become standard or even required practice. Ultimately, the consequence is that practicing physicians are misled to choose inferior or even harmful treatments for their patients. In this half day short course, I will identify and describe, by example, severe problems with a variety of statistical practices commonly used by medical statisticians and physician researchers. For each flawed practice, I will provide at least one practical alternative. Topics to be covered will include misinterpreting tests of hypotheses, misuse of p-values, evaluating strength of evidence, relationships between early treatment response and survival time, being misled by single-arm trials, futile futility rules, unsafe safety rules, Simpson's paradox, biomarkers and stratification, randomization and causality, bias correction, problems with outcome adaptive randomization, cherry picking, phase II-III designs, and dynamic treatment regimes.

About the instructor:

Dr. Peter F. Thall is the Anise J. Sorrell Professor in the Department of Biostatistics at M.D. Anderson Cancer Center. He is a Fellow of the American Statistical Association (ASA) and the Society for Clinical Trials, received the Don Owen Award in 2014, and is an ASA media expert. Dr. Thall has published over 260 papers and book chapters in the statistical and medical literature, and co-authored the 2016 book Bayesian Designs for Phase I-II Clinical Trials. His latest book, Statistical Remedies for Medical Researchers will published in early 2020. Dr. Thall's research areas include clinical trial design, precision medicine, Bayesian nonparametric statistics, incorporating expert opinion into Bayesian inference, and dynamic treatment regimes. He has presented over 200 invited talks and 30 short courses, and served as an associate editor for Journal of the National Cancer Institute,

Statistics in Medicine, Statistics in Biosciences, Clinical Trials, and Biometrics.

Statistics and Machine Learning Methods for EHR Data: From Data Extraction to Data Analytics/Predictions

Hulin Wu, PhD, The Betty Wheless Trotter Professor and Chair, Department of Biostatistics & Data Science, School of Public Health, University of Texas Health Science Center at Houston (UTHealth), Director, Center for Big Data in Health Sciences
Vahed Maroufy, PhD, Assistant Professor, Department of Biostatistics & Data Science, School of Public Health, University of Texas Health Science Center-Houston (UTHealth)
Ashraf Yaseen, PhD, Assistant Professor, Department of Biostatistics & Data Science, School of Public Health, University of Texas Health Science Center-Houston (UTHealth)
Duration: Full Day
Abstract:
This short course will provide an overview and present details of electronic health record (EHR) data extraction, cleaning, processing and analytics for scientific discoveries. The use of EHR data is becoming more prevalent for research purpose and deriving real-world evidence for decision or policy-making. However, analysis of this type of data has many unique complications due to how they are collected, processed, missing data issues, and types of questions that can be answered. This proposed short course covers many important topics related to using EHR data for research and scientific discoveries that include data extraction, cleaning, processing, making inference, and predictions based on many years of practical experience of instructors and their collaborators in the EHR Working Group at the University of Texas Health Science Center at Houston (UTHealth). Statistical and machine learning approaches will also be presented for EHR data extraction, cleaning and analysis. Additionally, since research projects for EHR Big Data are being conducted in large multidisciplinary research groups, the approaches for multiple-project management are necessary and will be also covered in this course.
About the instructors:

Dr. Wu joined the University of Texas Health Science Center at Houston (UTHealth) as Dr. D.R. Seth Family Professor and Associate Chair of Biostatistics and Professor of Biomedical Informatics in September 2015. He was appointed as the endowed Betty Wheless Trotter Professor and Chair for the newly named Department of Biostatistics & Data Science, UTHealth School of Public Health (SPH) in 2017. He is the Founding Director of the "Center for Big Data in Health Sciences" at UTHealth SPH with a goal to develop and use cutting-edge data science approaches to deal with Big Data from biomedical and health sciences. Dr. Wu was Dean's Professor of Biostatistics and Computational Biology, Professor of Medicine, and Professor of Public Health Sciences at the University of Rochester Medical Center (URMC) from 2003-2015. He was the URMC Founding Director of the Center for Integrative Bioinformatics and Experimental Mathematics. Dr. Wu has extensive experience in directing NIH-funded research13 projects and contracts. As PI/Co-PI, he has been continuously funded by NIH since 1998 and he has received a total of $30 million in NIH funding for independent research (R29 and 5 R01 grants), T32 training grant and NIH Cooperative Contract or center grants in the past 20 years. Dr. Wu has published 2 books and more than 130 peer-reviewed papers in statistics/biostatistics, biomathematics, bioinformatics and biomedical journals.

Dr. Maroufy is an Assistant Professor of Biostatistics at the department of Biostatistics and Data Science, School of Public Health-UTHealth. His research interests include data mining, statistical analysis and predictive modeling using big Electronic Health Records (EHR) and claim datasets. Currently his focus is on EHR data processing, cleaning, missing imputation and predictive analysis. Dr. Maroufy, has also experience and expertise in mathematical and methodological statistics such as mixture models, measurement error and sensitivity analysis using highdimensional data.

Dr. Yaseen is currently an Assistant Professor of Data Science at the School of Public HealthUTHealth. His research interests include Machine Learning, Data Management & Analysis, Big Data, Bioinformatics, and High Performance Computing. In his current research work, Dr. Yaseen is exploring Big Data and Deep Learning technologies in Electronic Health Records data to address clinical and public health questions. He has extensive experience in computer programming, database design, implementation and management, web design and programming, and software engineering. He is actively contributing to several research projects at UTHealth for health-data analysis.

Statistical Analysis of Microbiome Data with R

Yinglin Xia, PhD, Research Associate Professor, University of Illinois at Chicago
(Din) Ding-Geng Chen, PhD, Wallace H. Kuralt Distinguished Professor, University of North Carolina at Chapel Hill

Duration: Full Day

Abstract:
Microbiome data are generated through either 16S rRNA gene sequencing or shotgun metagenomic sequencing. One unique feature of microbiome data is phylogenetic treestructured. The bacterial taxa in a community are not randomly distributed; they usually not only depend on each other, but also exist the phylogenetic relationships among bacteria, which provides insights into the evolutionary relationships among bacterial taxa: a phylogenetic tree. Microbiome data have several features. The taxa abundance, amplicon sequence variants (ASVs) or operational taxonomic unit (OTU) counts, are naturally constrained, high dimensional, sparse with containing a large proportion of zero counts in the analysis data: feature table or OTU table. Typically, these data have complex covariance and correlation structures among different ASVs, OTUs, or taxa, and over-dispersed with large within-group heterogeneities.

The unique data structure and all these data features pose the great challenges to analyze microbiome data using standard statistical methods and models. Recently we developed a statistical framework which consists of combining newly developed methods and models for microbiome data and borrowing methods and models from other fields such as ecology. This work was published in 2018 as a book titled "Statistical Analysis of Microbiome Data with R" by Springer (coauthored by Xia, Y., Sun, J. and Chen, D.G.) (https://www.springer.com/us/book/9789811315336). Since the book published in October, 2018, there are more than 40,000 downloads from Springer Bookmetrix, which is far more than the average downloads of statistical book from Springer. So far the readers from more than 30 countries have given us feedbacks and we were told that this book has been used as textbook in Japan and several US universities. We were contacted frequently for requesting book material and slides for their teaching. The book review editor of the Biometrical Journal (Prof. and Dr. Annette Kopp-Schneider, the head of Division of Biostatistics, German Cancer Research Center, Germany) solicited a book review of this book, which published on 21 June 2019. This book was very positively reviewed (Biometrical Journal. 2019;1—2. www.biometricaljournal.com © 2019 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim DOI:10.1002/bimj.201900176).

Given the importance of microbiome study and currently only statistical book available, this book has been well received by peers of microbiome research. This course is designed to use this new book in this ICSA conference to meet the need of students and faculty to understand the microbiome data and perform the statistical analysis of microbiome data with R.

About the instructors:

Dr. Yinglin Xia is a Research Associate Professor at the Department of Medicine, the University of Illinois at Chicago, USA. He was a Research Assistant Professor in the Department of Biostatistics and Computational Biology at the University of Rochester, Rochester, NY. Dr. Xia has worked on a variety of research projects and clinical trials in microbiome, gastroenterology, oncology, immunology, psychiatry, sleep, neuroscience, HIV, mental health, public health, social and behavioral sciences, as well as nursing caregiver. He has published more than 100 papers in peer-reviewed journals on Statistical Methodology, Clinical Trial, Medical Statistics, Biomedical Sciences, and Social and Behavioral sciences. He serves the editorial board for several scientific journals. He has successfully applied his statistical knowledge, modeling and programming skills to study designs and data analysis in biomedical research, clinical trials, and in microbiome research. He has written the first book, an invited review, and a book chapter on statistical analysis of microbiome data. He has designed four grants on microbiome studies funded by NIH, VA, and other funding agencies. His recent papers on microbiome data analysis are well received by peers.

Dr. Din Chen is a Fellow of ASA. He is now the Wallace H. Kuralt distinguished professor in biostatistics, University of North Carolina at Chapel Hill. He was a professor in biostatistics at the University of Rochester and the Karl E. Peace endowed eminent scholar chair in biostatistics at Georgia Southern University. Professor Chen is also a senior statistics consultant for biopharmaceuticals and government agencies with extensive expertise in clinical trials and bioinformatics. He has more than 150 referred professional publications and coauthored/coedited 23 books on randomized clinical trials, statistical meta-analysis, public health statistical methods, causal inferences and statistical Monte-Carlo simulation and public health applications.

Upcoming Events

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

ICSA Sponsored Meetings:

2020 ICSA Applied Statistics Symposium

Huston, TX, USA
May 17 - May 20, 2020, subject to future changes due to COVID 19 pandemic
Please send any inquiry to Dr. Hulin Wu (Hulin.Wu@uth.tmc.edu). Please visit https://symposium2020.icsa.org/ for details including the key dates.

ICSA 2021 China Conference

Xi'an, China
July 2 —5, 2021
ICSA 2021 China Conference will be held at Xi'an from July 2 to July 5, 2021, co-sponsored by Xi'an University of Finance and Economics (XUFE).

ICSA 2022 China Conference

Chengdu, China
July 1 —4, 2022
ICSA 2022 China Conference will be held at Chengdu from July 1 to July 4, 2022, co-sponsored by Southwest Jiaotong University (SWJT

ICSA Co-sponsored Meetings:

The 8th Workshop on Biostatistics and Bioinformatics

Fall, 2020
Atlanta, GA
For detailed information including registration, please refer to https://math.gsu.edu/yichuan/2020Workshop/

IMS Asia Pacific Rim Meeting

January 5—8, 2021
Melbourne, Australia
Please see http://ims-aprm2021.com/ for details.

Career Service at ICSA 2020

2020 ICSA Applied Statistics Symposium

May 17-20, 2020 Westin Galleria Houston, Houston, Texas, USA

The 2020 ICSA Applied Statistics Symposium will be held from Sunday, May 17th to Wednesday, May 20th, 2020, at The Westin Galleria Houston, Houston, Texas, USA. This will be the 29th annual symposium for the International Chinese Statistical Association (ICSA). The theme of this conference is **Advancing Statistics for Data Intelligence**. For more information, please contact symposium2020@icsa.org or 2020 ICSA Symposium Executive Committee Chair, Dr. Hulin Wu at the University of Texas Health Science Center at Houston (Hulin.Wu@uth.tmc.edu), and visit the conference website https://symposium2020.icsa.org.

New! Career Service at ICSA 2020

The ICSA Symposium Career Service offers job opening posting, candidate resume submission, and on-site interview arrangement for jobseekers and our Gold Sponsors. There is no fee required for jobseekers to participate. Symposium registration is required though for using on-site interview facility. Please check out via https://symposium2020.icsa.org/career-service/.

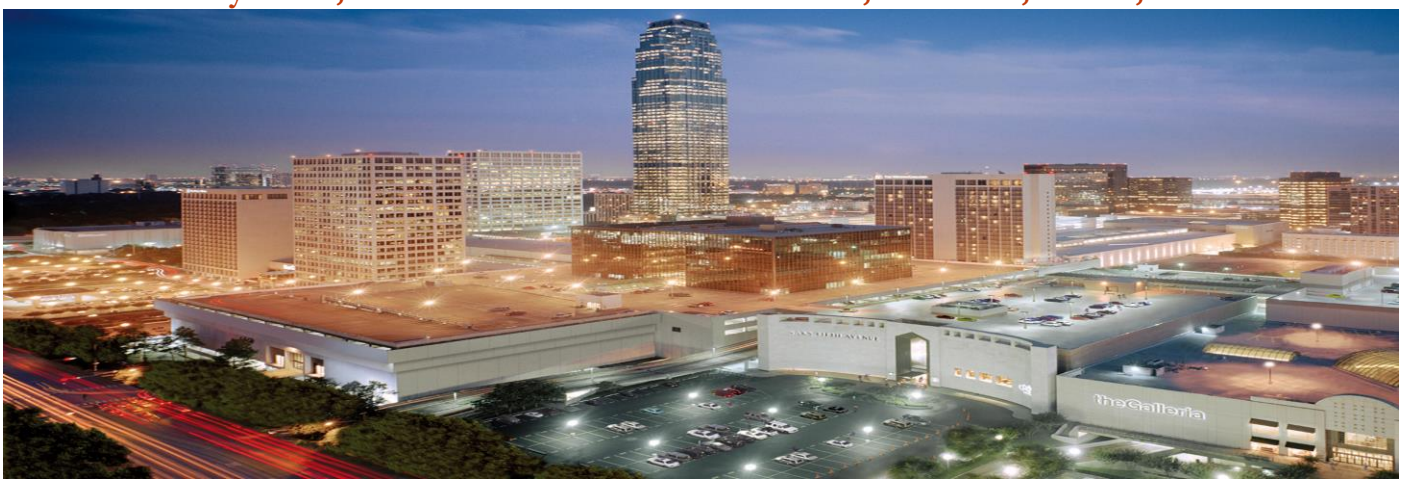
For candidates, when submit resume, you may indicate in the cover letter that you will be available for onsite interview at ICSA 2020 Symposium.

For sponsors, please contact Xiaohua Sheng at xiaohua.sheng@klserv.com for sponsorship and career service support.

For more details for sponsorship please check https://symposium2020.icsa.org/sponsorship/.

2020 ICSA Applied Statistics Symposium

May 17-20, 2020 Westin Galleria Houston, Houston, Texas, USA



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Keynote and Banquet Speakers

Keynote Speaker
Xihong Lin, PhD
Professor, Harvard University

Keynote Speaker
Michael I. Jordan, PhD
Professor, University of California, Berkeley

Keynote Speaker
Josh Chen, PhD, Head,
Global Biostatistical Sciences,
Sanofi Pasteur

Banquet Speaker
Hong Ogle, MS
Bank of America
Houston Market President

Key Dates

- Student Paper Award Application Deadline: February 15, 2020
- Invited Session Abstract Submission Deadline: March 15, 2020
- Early Bird Registration Deadline: March 15, 2020
- *New!* Poster Session Abstract Submission and Poster Award Competition Deadline: April 15, 2020
- CV/Resume for Career Services Submission Deadline: May 1, 2020

Houston

Houston is the fourth-most populous city in the United States. Notable facilities include the Museum District, the Houston Zoo, and NASA's Space Center. Houston is the seat of the internationally renowned Texas Medical Center (TMC), the largest medical complex in the world including University of Texas Health Science Center at Houston, MD Anderson Cancer Center, Baylor College of Medicine, Memorial Hermann Hospital, The Methodist Hospital, and Texas Children's Hospital. Several universities of higher education such as The University of St. Thomas, University of Houston, and Rice University are located within the city.

Space Center at Houston

Sam Houston Race Park

Galveston Cruise

Photo courtesy of Space Center Houston, Sam Houston Race Park and Dario Failla