CELEBRATING

BLACK HISTORY MONTH

ALSO:

My ASA Story: Alexandra L. Hanlon, Professor of Practice, Center Director, and Collaborative Biostatistician

Measuring and Reducing Bias in Machine Learning, AI
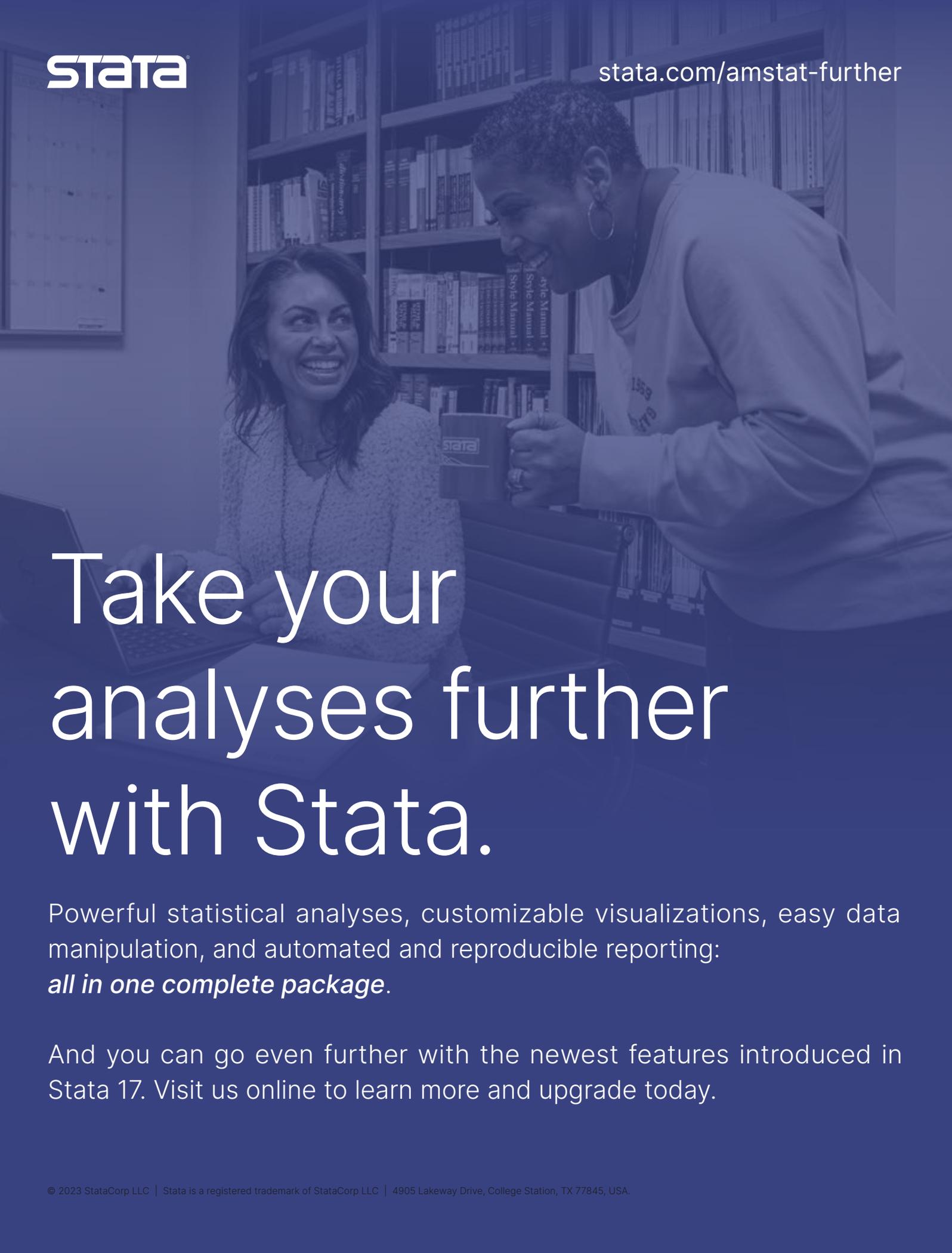
AMSTAT NEWS

FEBRUARY 2023 • ISSUE #548

The American Statistical Association is the world's largest community of statisticians. The ASA supports excellence in the development, application, and dissemination of statistical science through meetings, publications, membership services, education, accreditation, and advocacy. Our members serve in industry, government, and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare.

features

Alexandra L. Hanlon, Professor of Practice, Center Director, and Collaborative Biostatistician, shares her ASA story this month. **Page 10**

columns

STAT*tr@k* is a column in *Amstat News* and a website geared toward people who are in a statistics program, recently graduated from a statistics program, or recently entered the job world. To read more articles like this one, visit the website at *http://stattrak.amstat.org*. If you have suggestions for future articles, or would like to submit an article, please email Megan Murphy, *Amstat News* managing editor, at *megan@amstat.org*.

This column is written for those interested in learning about the world of Data for Good, where statistical analysis is dedicated to good causes that benefit our lives, our communities, and our world. If you would like to know more or have ideas for articles, contact David Corliss at *davidjcorliss@peace-work.org*.

In this month's Stats4Good column, David Corliss looks at reducing bias in machine learning and AI. **Page 22**

Latest Books from ASA/CRC Press Series Feature Car Safety Statistics and Reading Between the Headlines

Backseat Driver: The Role of Data in Great Car Safety Debates, **by Norma Faris Hubele**
Car safety advocates, manufacturers, and lawmakers in the United States have clashed over whether to make automobiles safer. All sides armed themselves with data in the hopes of winning the great car safety debates. In this way, crash statistics and the analysts who studied them made history. But data was always in the backseat, merely supporting different points of view. Automobile safety expert Norma Faris Hubele delivers a lively discussion about the role data plays in protecting you and your family on the road.

Statistics Behind the Headlines, **by A. John Bailer and Rosemary Pennington**
How do you learn about what's going on in the world? Did a news headline grab your attention? Did a news story report on recent research? What do you need to know to be a critical consumer of the news you read? If you want to start developing your data self-defense and critical news consumption skills, this book is for you! It reflects a long-term collaboration between a statistician and journalist to shed light on the statistics behind the stories and the stories behind the statistics. The only prerequisite for enjoying this book is an interest in developing the skills and insights needed to better understand news stories that incorporate quantitative information.

The Newest Issue of *Statistics Teacher* Is Available

The online journal for statistics teachers is up and ready to read. Included in this latest issue is the Joint ASA-NCTM position statement on preparing PK–12 teachers of statistics and data science. Additionally, there are two articles that provide suggestions for helping students confront potential misconceptions in probability and statistics: "Predicting Election Results from Football Statistics (1936–2020): An Archival Analysis in a Real-World Example" and "Experiments of Two Coin Tosses." *https://bit.ly/3kqqGgn*

member news

Nominations Open for Annie T. Randall Innovator Award

The award was named for groundbreaking Black female statistician Annie T. Randall for her pioneering career in government amid pervasive racial discrimination. **Page 30**

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Embracing JEDI Is Embracing the Intellect of All

In this month's *Amstat News*, we celebrate Black History Month. As a student, I learned about the Rao-Blackwell theorem. Later, I was drawn to explore one of the minds behind the theorem: David Blackwell. He contributed greatly to the mathematics and statistics fields through his work and the work he inspired in others. His success did not come without challenges. He lived and worked during a time when the focus was on his race, not his intellect. Yet, he persisted and became a giant in the field.

Many years have passed, but there are still settings in which bias has the potential to negatively affect the careers and professional development of our members. Thus, embracing JEDI is embracing the intellect of all.

The ASA Statement on Justice, Equity, Diversity, and Inclusion reads in part, "We affirm that our mission, 'Promote the Practice and Profession of Statistics,' can be realized only by fully embracing justice, equity, diversity, and inclusivity in all of our operations." Through this commitment, we are ensuring we promote a professional environment without implicit or explicit bias and barriers so all can contribute and apply knowledge of statistics and data science. Moreover, our knowledge can prove invaluable in ensuring data and statistics are used to accurately inform decisions and drive discoveries without bias.

The Anti-Racism Task Force convened by the ASA Board under the leadership of Wendy Martinez, Rob Santos, and Kathy Ensor offered recommendations to our community. We are working to make progress on their recommendations and have engaged the Nova Collective (*www.thenovacollective.com*) to partner with us. What follows is an interview to introduce the Nova Collective and the work we will do together.

What is the Nova Collective?

The Nova Collective is a firm that partners with organizations to evolve through a lens of equity. More to the point, Nova is a diversity, equity, and inclusion consulting and training company. We've been around for nearly seven years and have a team of more than 20 folks working across North America (and beyond).

The Nova team dedicated to the ASA includes Jemia Williams, strategist; Casey Pilkenton, project lead; Jaci Devine, research and data; and Brynne Hovde, account manager.

Initially, what interested you in working with the ASA?

We loved the thoughtful nature of the request for proposal the ASA issued; it clearly indicated an awareness and earnestness for this work that we don't often see. Our hunch was validated throughout the process. We appreciated the candor, warmth, and intentionality the ASA team demonstrated.

Beyond these indicators, Nova loves working with membership groups. We relish the opportunity to support community-building outside the constraints of a 'workplace.'

We've worked together for several months. What has been the most interesting aspect of working with the ASA?

It has been fascinating to get to deep dive into the historical and current practices of statistics. The passion everyone feels for the field—and for the association—is so palpable and genuine.

On a personal note, we've loved getting to know our ASA team members—learning that Donna runs marathons and Ron has an extensive and diverse family has been a joy.

The terms diversity, inclusion, equity, belonging, and accessibility are used but maybe not with a shared understanding. How do you define these terms?

In shorthand, we define the terms in the following way:

- Diversity is a fact. It is about who is in the room (so to speak) and the lines of difference present.

- Inclusion is a choice. The intentional and ongoing engagement with diversity and lines of difference.

- Equity is an opportunity. Most day-to-day decisions offer the opportunity to challenge the status quo and offer people what they need to thrive.

Dionne Price

MORE ONLINE
Join us February 23 at 4 p.m. ET for a Nova Collective town hall. Registration is required: *https://bit.ly/3GLqMGY*.

Ready for More NOVA?
Webcast: *https://bit.ly/3H90IH8*

Podcast: *https://bit.ly/3CWgrXr*

Blog: *https://bit.ly/3WjMs2D*

The Nova team gathers at a recent anniversary celebration in Chicago. Back row, from left: Mario Lucero, Ben Henning, Casey Pilkenton, Facie Chiwanza, Jasmine Nelson, Jaci Devine, and Brynne Hovde. Middle row, from left: Tiffany Hudson, Jessica Wilson, and Noor Ali. Front row, from left: Christina Sterzel and Robyn Scott.

- Belonging is a feeling. When we are included and celebrated across lines of difference, we experience belonging.

- Accessibility is a framework. We must start with access in mind in all things, not as an afterthought.

And we'll add community as the structure of belonging in a group. So, we often say community is the structure of belonging, which is the feeling of inclusion as the intentional engagement with diversity. And, in its best form, it is all designed through the lens of accessibility and equity.

How does this inform your work?

We see all these terms and ideas as fluid—they are in constant motion as we work to realize them and nurture them. We have never 'arrived' at any of these points. They are an ecosystem in constant flux. For Nova, our training, recommendations, tools, and strategies are informed by the understanding of the ecosystem and geared toward its success.

How can the ASA community contribute to this work?

There will be several opportunities to get involved directly, through small group conversations and town hall events. On an individual level, every member is encouraged to engage with the process, materials, and recommendations. Individual behaviors have a huge impact on the ecosystem of DIEBA work. We encourage members to consider their sphere of influence and make personal commitments to evolve along with the organization.

Are there resources you would recommend to our members who want to learn more about diversity, inclusion, equity, belonging, and accessibility?

Nova has a resource list that is a great starting point for folks on their DEIBA journey. It can be downloaded from *https://bit.ly/3wcHutY*.

What else would you like to share with the ASA community?

We are so honored to be on this important journey with you all. While the road ahead may be, at times, uncomfortable and challenging, it will also be joyful and affirming.

As statisticians and data scientists, you all know better than anyone that a single data point rarely tells a complete story, and we know you all will continue to embrace the complexity you are used to working with every day.

In my January column, I shared that I would be guided by the ASA mission. By embracing JEDI, we are embracing the intellect of all and reaffirming our mission, so I look forward to the work we will do with the Nova Collective.

Suggestions for Combining Secondary Data Analysis and Community-Based Research

We are living in an explosion of publicly available data. A huge amount of information is released in publications and publicly available surveys, updated data-sharing policies frequently require primary data to be accessible, and advancing technology facilitates more sophisticated analyses. All this data has power—power to affect all areas of policy, influence decision-makers, and, ultimately, tell people's stories.

Statisticians and data scientists have a responsibility to analyze data in the most thoughtful way possible. We need to be informed by the context of the data we analyze, figure out the most critical questions to ask, and choose appropriate methods to answer these questions. However, traditional approaches to secondary data analysis (analysis of data that has already been collected) do not involve the people most affected by the analysis. This creates distance between statisticians or data scientists working with secondary data and the communities behind it.

By connecting secondary data analysis with community-based research, we can decrease this distance. Community-based research involves mutually beneficial collaboration between academic researchers and community partners. There are exciting synergies between community-based research and secondary data analysis. Because community-based research involves building two-way connections with community partners who have the power to set analytical priorities, it can build alignment between statisticians working with secondary data and the communities affected by its analysis. Community partners can direct secondary data analysis to ask the most impactful questions possible. Partners can also guide which data sets should be used for which purposes and identify errors or omissions in secondary data.

Based on these and other synergies, I've developed empathetic data science practice, which combines the two research approaches to their mutual benefit. Major principles of this practice are the following:

- **Determine a wide range of potential stakeholders** to engage in the research process. It can be difficult to think about how to define "community" in secondary data analysis because the data might not have been collected with the same groups that will be affected by its analysis. Because of this, researchers should determine a variety of potential stakeholders.

Want to Know More?

The following papers focus on community-based research:

"Review of Community-Based Research: Assessing Partnership Approaches to Improve Public Health," *Annual Review of Public Health, https://bit.ly/3ZtyLRx*

"The Three Rs: How Community-Based Participatory Research Strengthens the Rigor, Relevance, and Reach of Science," *Environmental Justice, https://bit.ly/3Xpg67z*

"The Truth, the Whole Truth, and Nothing but the Ground-Truth: Methods to Advance Environmental Justice and Researcher–Community Partnerships," *Health Education & Behavior, https://bit.ly/3GwDSrj*

Claire Morton is a third-year undergraduate student at Stanford University, majoring in mathematical and computational science and minoring in environmental justice. She is passionate about how statistics and community-based research can be combined to advance environmental justice goals. In her free time, she enjoys juggling.

- **Stay involved, even outside of funded research windows**. The partnership is just as important as the publications, particularly when projects (like secondary data analyses) don't have a clear arc of planning surveys or other data collection methods, data collection, and data analysis.

- **Communicate project findings**. Since secondary data may not have been collected from or by community partners explicitly, researchers may feel less of a need to share findings back to the communities. However, data is often viewed as more objective and therefore better evidence for policy change than other types of evidence, which means research findings must be communicated directly to the affected communities; when the potential for impact is greater, the need for science communication is, too.

If we don't connect with the communities behind the data we're looking at, we're left with evidence that has been created without thoughtfulness. Through combining secondary data analysis with community-based research, we can produce more empowering and effective research. ∎

What Is COSSA Doing for You?

The Consortium of Social Science Associations serves as a bridge between research and government

Kim Gilliam, ASA Marketing Project Manager

The ASA is a member of the Consortium of Social Science Associations, a nonprofit advocacy organization working to promote and advance the social and behavioral sciences in federal policymaking. What does this mean for ASA members? Tune in to this Q&A with COSSA Executive Director Wendy Naus to find out.

Tell us about your role at COSSA and the mission of the consortium.

COSSA is the Consortium of Social Science Associations, and I have had the privilege of serving as its executive director for the last nine years. I've been a professional advocate and lobbyist for almost 20 years in the DC policymaking area. I like to say I have dedicated my career to advancing the policy interests of 'noble causes.' In this case, those noble causes are the social and behavioral sciences.

Wendy Naus

COSSA engages in direct lobbying with Congress, but we also serve as a representative of the social science, behavioral science, and statistical and data science communities before federal policymaking audiences, serving as a bridge between the research enterprise and government. We help translate scientific information and findings into, hopefully, sound policy and increased funding for the important work our researchers do.

How does the ASA's COSSA membership benefit and affect our members?

COSSA really wouldn't exist without professional organizations like the ASA—and we are 100 percent in service to our members. We serve as an umbrella voice for all the different fields within the social, behavioral, and statistical sciences and

we have a singular focus, which is advocacy for everyone—lifting all boats, so to speak.

One of my regular talking points is that if your professional association—like the ASA—is a member of COSSA, that means you are automatically a member of COSSA, too. In other words, anyone affiliated with a COSSA membership organization is eligible to receive any members-only benefits we offer, whether that's webinars, participation in our advocacy events, policy analyses, or simply engaging with our staff to gain expertise in or information about what's happening at a certain federal agency or Congress. And so, there are tangible member benefits in the form of resources, talking points, and tools researchers can use.

But what I think is a really important aspect of COSSA membership is the building of community. Our consortium allows statisticians to 'be in the room' (or virtual room) with others across the social, behavioral, statistical, and data sciences and learn how different disciplines and fields are tackling challenging scientific questions and complicated societal issues.

In short, a member organization can get out of COSSA whatever it wants. Some are less active in advocacy, themselves, and like to be part of a

> COSSA engages in direct lobbying with Congress. . . . We help translate scientific information and findings into, hopefully, sound policy and increased funding for the important work our researchers do.

Getty Images

larger community effort. Others wish to engage their members in grassroots advocacy and look to COSSA to help facilitate that through training, advice, and other services.

Let's drill down a bit further and talk about a particular benefit: the "Why Social Science?" project. Would you say a little bit about that and why there has to be a "Why Social Science?" project?
I am really proud of "Why Social Science?" (*www. whysocialscience.com*) This is an initiative we started five or six years ago but has been a long time in the making because of the challenges our fields have faced for decades. The primary impetus is that not everyone understands what social science is or the value it holds, especially when taxpayer dollars are being spent on it. It can translate to significant

challenges to our sciences (such as funding cuts) when the most vocal critics sit in positions of power like in the United States Congress.

I always say the social and behavioral sciences have a bit of a branding problem in that everyone thinks they know what they are. We often hear things like, "social science is common sense" or "I know how to create a Google form and therefore can do my own survey." We developed "Why Social Science?" as a way to address these misconceptions and make the social and behavioral sciences more accessible to the general public. We simply ask our authors—researchers, members of Congress, people from industry, students—to answer the question "why is social science important" from their unique vantage point. The result is a suite of short, easy-to-understand accounts of how social, behavioral, and statistical science are shaping our everyday lives.

Naus says she is proud of the "Why Social Science?" project (*www.why socialscience.com*). The website explains what social science is and the value it holds.

York, and I graduated college with a political science degree. I did the typical internship in Washington as an undergrad and knew immediately this is where I wanted to be. I enjoyed politics and history, but besides that, didn't know if I wanted to work on Capitol Hill or go to law school or something else.

I was incredibly fortunate in that one of my professors in Buffalo had a connection at a lobbying firm in Washington that was seeking recent graduates to join their team. To be honest, I don't think I really understood what a lobbyist was when I was hired, but I was excited to be getting my start in DC. As it turns out, lobbying—and advocacy more generally—is perfect for anyone looking to make a difference in the world.

For the last two decades, I have been able to advocate for causes that are important to me and, hopefully, add some value to the discourse around science policy. It can be a very satisfying vocation—when it is not frustrating.

We hear about innovations in criminal justice, lessons learned from the COVID-19 pandemic, advancements in early childhood education, and other societal topics we all confront on a daily basis. In short, they tell the story of how our sciences are everywhere and underscore the need to bring them to bear on the big questions that affect us all.

I understand you were a lobbyist for 20 years. Can you tell me a little bit about your journey to that career?

That's a great question, and my answer is probably not very satisfying. I'm one of those people who did not know what they wanted to be when they grew up. I'm from Buffalo, New

COSSA's website includes an action center. Tell us about it and how you hope members will use it.

We launched the action center a year ago when we completed a full overhaul of our website. I have focused a lot of energy over these last nine years on member benefits and making our resources as easy to find as possible for those who want to use them. We built the action center to serve as a central location for things like talking points, policy briefs, action alerts, and our advocacy handbook that explains the how-tos of effective advocacy. But what we're really excited about, especially in this post-COVID world, is

You don't have to come to Washington to engage in this process. There are ways you can build relationships and use your expertise to help inform policy without having to leave your home.

the content we'll be adding soon about ways to become an advocate from home.

You don't have to come to Washington to engage in this process. There are ways you can build relationships and use your expertise to help inform policy without having to leave your home. I think we're living in such an activist time right now and people want their voices to be heard. We want to encourage that as much as possible.

What do you think COSSA's significant challenges and opportunities are?

Great question. I find myself struggling in the challenge department these days because we're in such a different place than we were, say, nine years ago when I started. There was at that time definitely a target on the back of our sciences; there were policymakers actively trying to defund the social sciences. And while attacks like that still happen from time to time, it is not the norm presently.

The social and behavioral sciences are having a moment in which government officials acknowledge their value and utility. They are realizing that whether you are talking about climate change or COVID or the racial reckoning of the last couple of years, these are all human-centered problems for which sound data and scientific inquiry are needed.

My main concern in this regard is that, as a community, we don't step up to the call for more social science. Policymakers want information our sciences can provide; now what we need is for researchers to make themselves available to policymakers and offer their expertise. This is a major opportunity to change the conversation around the value of social and behavioral science in the eyes of the public and our elected officials.

The other challenge I see is a continuous one, and that's champion development. We are losing several strong champions for social and behavioral science at the end of the 117th Congress, when some of our more vocal supporters will retire. And so, regardless of how which party controls the chambers starting in 2023, we have a lot of work to do to nurture new champions for science in general and social science in particular. ∎

PRACTICAL SIGNIFICANCE
AMERICAN STATISTICAL ASSOCIATION

TUNE IN
to the latest episode of the *Practical Significance* podcast with

HOSTS

Ron Wasserstein   Donna LaLonde

Practical Significance inspires listeners with compelling stories from statistics and data science and propels data-driven careers forward with learning opportunities for all.

Listen in via *Amstat News's* website: *https://magazine.amstat.org/podcast-2.*

Alexandra L. Hanlon

Professor of Practice, Center Director, and Collaborative Biostatistician

In 2019, I arrived at Virginia Tech to build and direct the Center for Biostatistics and Health Data Science. My team and I work with researchers from across Virginia Tech, as well as beyond the university community, to improve health with data *within a team science model*. We do this by creating networks and collaborations across disciplines and by providing expertise in statistics, data science, statistical programming, and data management.

I could not ask for a more fulfilling position, and writing this article provides an opportunity to reflect on my path and the factors that paved my way. Certainly, there are both individual and external factors that shaped my journey. Individual factors include strong technical, communication, and leadership skills, while external factors include having a strong professional network, institutional support, and recognition among my peers.

Before expanding on the contributing factors, I want to speak to how I ended up in health statistics. As a graduate student in 1990, I became a member of the American Statistical Association and volunteered to help with the Joint Statistical Meetings in Anaheim, California. During that meeting, I pored through binders of open job positions and met with a host of employers from various fields, including health, sports, environmental, and quality. I quickly settled on biostatistics for a personal reason: My mother died at the young age of 37 from breast cancer.

My first career position as a biostatistician was with the American College of Radiology in Philadelphia, a connection I made at JSM. My early work with clinical investigators and junior faculty fueled a passion for the practice of statistics and facilitating scholarship among others.

Photo by Steve Kasich
Alexandra L. Hanlon

With this came responsibility for advocating for the critical role applied statisticians play in translational science and team science framework.

In terms of technical skills, I have advanced degrees in mathematics and statistics. As a practicing statistician in the health sciences—often without internal access to methodological experts in statistics—I relied on ASA sections and discussion groups to ensure my work incorporated appropriate and rigorous methods for the setting.

Both written and verbal communication are critical to the success of a collaborating biostatistician. I have a passion for writing, and I continue to refine my ability to translate technical findings to a lay audience. The importance and depth of strong communication skills for

the success of a collaborating statistician became even more clear to me at the 2012 Conference on Statistical Practice, the inaugural conference in Orlando, Florida. Following that meeting, I found myself working to improve in areas beyond the knowledge of methods or programming skills, including time management and accessibility, responsiveness, kindness, listening skills, empathy, and cultural competence.

Finally, in terms of personal leadership skills, I credit the ASA for putting me on a leadership trajectory. I volunteered to serve as an ASA chapter officer in Philadelphia during the early 2000s, and then expanded my efforts to the national level with the Council of Chapters Governing Board. I currently serve as a COCGB representative to the ASA Board of Directors and have served on various committees along the way. These experiences have taught me how to work more effectively with people and provided experiences to practice more powerful ways to lead.

Networking is an external factor important for establishing, building, and nurturing long-term, mutually beneficial relationships. My networks established through the ASA—whether as a participant at JSM or CSP, organizer for events such as traveling courses, or contributor through service roles—have been critical to my career development. Networks provide opportunities to connect with mentors; advisers; and resources needed to foster growth, increase your visibility, develop your skill set, and improve your soft skills.

Other external factors critical for career growth include having institutional support and peer recognition. I cannot say enough about Virginia Tech's leadership and their progressive thinking and commitment to professional development and faculty retention. Virginia Tech has strong connections with the ASA, a path that connected me to them. Finally, I became an ASA Fellow in 2019 in recognition of my contributions as a collaborative biostatistician. This award is a testament to the ASA's promise to serve as the "big tent for statistics and data science."

In summary, the ASA has been instrumental to both my personal and career growth. I am grateful to the ASA, my various mentors and advisers, and my peers and colleagues. I am excited to see a continued shift toward team science and practicing statisticians, particularly those who may be practicing outside a statistics department. ∎

Meetings Task Force Wants Your Input

Kathy Ensor, ASA past-president, convened a meetings task force comprised of John Bailer, Rebecca Hubbard, Willis Jensen, Julia Sharp (chair), and Jiashen You to make recommendations for locations of the ASA's smaller meetings, including the Conference on Statistical Practice, Women in Statistics and Data Science Conference, Symposium on Data Science and Statistics, and International Conference on Health Policy Statistics. One charge of the task force is to

> [P]ropose recommendations for ASA meeting planning policy that will ensure the association's Code of Conduct is met and that meeting attendees enjoy a safe, respectful, and accessible environment regardless of specific laws and requirements of the meeting location."

Task force members are working with ASA meetings staff to understand current policies and procedures for selecting a meeting location. They are also reviewing resources from other organizations to develop a recommended checklist for ASA staff to consider when selecting meeting locations.

Another charge of the task force is to

> [P]ropose mechanisms for the association to inform the community about the information on a meeting's safe, respectful, and accessible environment.

The ASA enters into contracts with conference sites several years in advance. It is financially prohibitive to cancel a meeting or move a meeting to a hybrid setting once a contract has been entered into. However, the task force can provide recommendations for a communication plan that ensures attendees are informed of decisions and have access to relevant meeting information before or during a meeting. For example, the ASA might provide a map of the meeting site on the conference website prior to the meeting for attendees to review and become comfortable with.

The task force members are seeking your input to inform their work. Please take a few minutes to respond to the brief questionnaire at *https://form.jotform.com/zzlalo/meetings-task-force-community-input*. ∎

CELEBRATING

BLACK HISTORY MONTH

In celebration of Black History Month, we recognize 12 members from the Black/African American collective who have made tremendous contributions to the statistics field as professors, researchers, volunteers, and health care professionals. Read their full biographies in *Amstat News* online to learn more about how they entered the field, what they have accomplished, and the role of mentoring in helping build their professional careers. *https://magazine.amstat.org*

Peggy Carr

Commissioner for Education Statistics, National Center for Education Statistics

Peggy Carr and her siblings were among the first African American students to integrate K–12 schools in eastern North Carolina. This challenging period of community growth, identity, and self-reflection inspired her intense interest in equity in education. She began to excel in mathematics and science, which eventually led her to excel at two historically Black universities—North Carolina Central and Howard. The first in her family to earn a PhD, Carr is also the first person of color to hold the prestigious, presidentially appointed position of NCES commissioner.

Stephanie Cook

New York University, James Weldon Johnson Professor

Assistant Professor, Department of Social and Behavioral Sciences and Department of Biostatistics

Director, Attachment and Health Research Lab, School of Global Public Health

Stephanie Cook was interested in math and science as a girl, but math did not come easy for her because she has mild dyscalculia—a disability that impairs a person's ability to learn number-related concepts. Even though it took her longer to do math, she excelled at it. Consequently, she went on to earn an MPH and DrPH in socio-medical science at Columbia University with a focus on research methods and statistics. Currently, she is a New York University James Weldon Johnson Professor in the department of social and behavioral sciences and department of biostatistics.

Felicity T. Enders

Professor of Biostatistics, Mayo Clinic

Felicity Enders fell in love with data and statistics while she was earning her Master of Public Health degree at Johns Hopkins Bloomberg School of Public Health. As a result, she landed in the PhD biostatistics program there, as well. Formerly head of the section of clinical statistics at Mayo Clinic, her proudest moment thus far has been her transition from teaching statistics focusing on health equity, workforce diversity, and inclusion as director for the Mayo Clinic Office for Research Equity, Inclusion, and Diversity "It's always scary to jump into something new without knowing whether it will work," she wrote. "I am incredibly thankful for all the people who have supported me in this transition. I believe there is a great deal to be done in this space, both statistically and otherwise, and I am excited to help move the field forward."

Lester Mackey

Microsoft Researcher

Lester Mackey's interest in statistics unfolded when he was a student immersed in the Ross Mathematics Program, an intense eight-week summer curriculum in number theory designed to expose teenagers to proof-based mathematics. His interest in machine learning was piqued, however, when he competed for the million-dollar Netflix Prize during his senior year in college. His team lost by 20 minutes, but the experience opened the door to his future. "Every day," Mackey noted, "I reflect on my good fortune at finding a field (machine learning) and a job (researcher) that I truly love. My work scarcely seems like work, as it's exactly what I would be doing even if no one was paying me."

D. Anthony Miles

Chief Executive Officer, Miles Development Industries Corporation

During college, D. Anthony Miles played in a rock-and-roll/heavy metal band that tried to get a record deal. That did not happen. Life happened. Instead, he graduated with a degree in marketing from The University of Texas at San Antonio and went into the banking industry. It was while working as a marketing analyst at Wells Fargo Bank that Miles discovered he had an interest in statistics. His passion for the profession, however, was encouraged by his uncle—the late Ralph E. Miles, a biostatistician. "It was my uncle who nurtured my love of the practice of statistics, and I credit all my accomplishments to him," said Miles. He has presented his statistics research at conferences around the country and appeared on several major news networks and programs as a subject matter expert. Currently, he leads a nine-person research team.

Calandra Tate Moore

Video, Image, Speech, and Text Analytics Research Lead, Computer and Analytic Sciences, US Department of Defense

Calandra Tate Moore was always drawn to the mathematical sciences. She recalls regularly pretending to be a math teacher as a child and being excited about timed math skills tests. By the time she reached her senior year, she had taken all the mathematics classes available at her high school. Eventually, her love for math impelled her to pursue three degrees and spend her career evolving what it means to "do math" and manifesting what you can do with a math degree. With more than two decades of experience in academia and the federal government, Moore has conducted research on a wide range of mathematical and statistical applications. Currently, as a technical leader in video, image, speech, and text analytics research for the US Department of Defense, her work focuses on human language technology.

Knashawn H. Morales

Associate Professor of Biostatistics in Biostatistics and Epidemiology, Hospital of the University of Pennsylvania

Knashawn H. Morales is one of two daughters born and raised in North Carolina to loving and supportive parents. From an early age, she developed an appreciation for science and public health. Having a mother and father who were trained as a chemist and an architectural engineer, respectively, likely influenced her. After earning her doctorate, Morales became a research scientist at the New England Research Institutes. Within two years, she joined the University of Pennsylvania, where she collaborated with investigators on research focusing on mental health services and behavioral modification interventions for asthma, insomnia, weight management, and HIV/STD risk reduction. She enjoys mentoring students and noted, "I am blessed to have had wonderful mentors along my journey and can only hope to pay it forward by being a positive influence for others."

Andrea Roberson

US Census Bureau

Born in Brooklyn, Andrea Roberson grew up in the suburbs of Long Island, New York. When she was a child, her father would tell her bedtime fairy tales. Her favorite, the tale of the African Princess of Mapungubwe—who was given the superpower of mathematics—could always compute the right solutions, earning her freedom from any threat. However, undiagnosed autism and ADHD created obstacles to learning and performing in the classroom for Roberson. Achievements in the mathematical sciences seemed an ill-fated dream. This changed when she met Nagambal Shah, who encouraged Roberson to persist. Today, Roberson is a leader in the US Census Bureau's big data initiative. Her innovative research in artificial intelligence and machine learning keeps the nation as the world's forerunner in the production of economic statistics.

Ronnie Sebro

Professor of Biostatistics and Musculoskeletal Radiology, Mayo Clinic

Ronnie Sebro grew up in Tobago, a small Caribbean Island, the third of six children. He was the first student from Tobago to receive a National Scholarship in the Sciences from the Government of Trinidad and Tobago. He graduated summa cum laude with a degree in biology and minor in mathematics from Morehouse College. He was also the first student at Morehouse to receive the Howard Hughes Medical Institute predoctoral fellowship. Sebro's career differs from most statisticians because he decided to go to medical school during graduate school. He spent his junior faculty years at the University of Pennsylvania and joined the Mayo Clinic in December of 2020. Recently, he was promoted to professor of biostatistics and professor of musculoskeletal radiology. He was humbled to learn he is one of a handful of Black male biostatistics professors and simultaneously one of few Black male radiology professors in the United States. This was one of the proudest moments in his life, second only to the birth of his son and marrying his wife.

Felicia R. Simpson

Associate Professor of Statistics and Chair, Department of Mathematics, Winston-Salem State University

Felicia R. Simpson has enjoyed mathematics since she was in elementary school but was inspired to study biostatistics by her mentor, Zephyrinus Okonkwo. She loved the idea of combining mathematics and helping people. She wanted to study biostatistics to understand health disparities from a statistical point of view, especially after losing her mother to a stroke. After earning her PhD in biostatistics, Simpson started her career at the FDA but transitioned to teaching because she wanted to expose underrepresented students to statistics and biostatistics. She is currently an associate professor of statistics and chair in the department of mathematics at Winston-Salem State University.

Sean Simpson

Professor, Biostatistics and Data Science, Wake Forest University School of Medicine

Sean Simpson grew up in Richmond, Virginia, and attended majority Black public schools throughout his childhood. Simpson's parents supplemented his education through programs such as the Richmond Area Program for Minorities in Engineering and Center for Talented Youth. However, it was when he watched a presentation about biostatistics during his junior year at Harvard University that his career path became clear to him. He is now a biostatistics professor at Wake Forest University and was elected an ASA Fellow in 2022—an honor that served as a culmination of his contributions to the field.

Talithia Williams

Associate Professor of Mathematics and Mathematics Clinic Program Director, Harvey Mudd College

Growing up in a small town in Georgia, Talithia Williams loved playing pretend, but in all her imagining, she never saw herself as a statistician. She knew those people existed, but no one who looked like her did those things, so it never occurred to her it was something to aspire to. Fortunately, her high-school AP Calculus teacher, Mr. Dorman, told her she should major in math in college. His affirmation planted a seed that changed her trajectory. She was accepted to Spelman College and awarded a NASA Women in Science and Engineering scholarship. There, she was exposed to African American women with PhDs in STEM and consequently went on to earn her PhD in statistics from Rice University. Today, she is an associate professor of mathematics and mathematics clinic program director at Harvey Mudd College. ∎

STAT*tr@k*

What Would You Tell Your Grad School Self?

Elizabeth Mannshardt, 2022 Committee on Career Development Chair, and Meg Ruyle, American Statistical Association

The following members of the ASA's Committee on Career Development have worked with many experienced statisticians and mentors during committee events such as **Guided Professional Networking** (*https://bit.ly/3iQuI11*) at the Joint Statistical Meetings and webinars like "Distinguished Careers in Statistics and Data Science" (*https://bit.ly/3CWChdi*). Now, as mentors themselves, they think back to their graduate school days and answer the question, **"What would you tell your grad school self?"**

ROBERT L. SANTOS
Director, US Census Bureau

Everything you need to have a fulfilling, successful career is already inside you. Your superpower will always be your whole self: your life experience; your culture; your technical knowledge from classes/work experience; even your personal traits (yes, I mean shyness/imposter syndrome, a passion for helping people, personal resilience, curiosity, creativity, etc.). Your weaknesses really can be transformed into strengths, just as your threats can be transformed into opportunities.

Beyond all the technical skills you will learn, by far the most valuable personal skill to develop is your critical thinking. Cradle it, nurture it with activities and hobbies not related to your field of study (e.g., photography, live music, hiking, fishing). That includes allowing yourself to fully embrace your superpowers that I mentioned above.

CLAIRE MCKAY BOWEN
Principal Research Associate, Statistical Methods Group Lead

If you have a significant other, schedule time together once a week (or some regular cadence) and stick to it. Unless I had a major deadline, I had date night once a week with my spouse. We set this up at the beginning of my graduate program because we wanted to be sure we spent quality time together. My spouse has always been my support, so I cherished the moments we spent time together. To this day, we still have date night or date day (brunch) once a week.

If you do not have a significant other, schedule time for yourself. That scheduled time could be taking yourself out to the movies, getting a nice meal, etc. Self-care is important.

ESTHER PEARSON
Statistician and Researcher, Adjunct Professor, Franklin University

Use real-life scenarios to practice what you are learning in grad school classes. You don't have to depend on the course projects and assignments to gain experience. Create projects and assignments for yourself with real-life scenarios that benefit you personally.

ELIZABETH MANNSHARDT

Director, Statistics Methods and Innovation Program, National Center for Science and Engineering Statistics, National Science Foundation

- **Ask questions.** You are not expected to know everything nor to be infallible; over time, you will become an expert in some things (and more so by asking questions). I used to be afraid to ask questions (see *https://community.amstat.org/ccd/events/ccdpodcasts*), but now I value the opportunity to learn and explore.

- **Take chances and fail.** It is okay to try and not succeed, to take that tough course but fail the test (statistics is hard), to explore a new idea but not have that paper published (it has happened to everyone), to apply for but not get that seemingly amazing job (these instances are not always a great fit). If you take chances, you will go to new and possibly unexpected places. Your career, just like life, is a journey with many choices and chances to take.

- **It is never too early to network.** Your current set of grad school friends is your future professional network. Value the time you have together to collaborate, engage, discuss life, laugh, and find connections. They will be your colleagues, collaborators, coaches, and personal cheerleaders throughout your career. I am inspired by my former grad school friends' amazing achievements and appreciate how we have continued to learn from and offer guidance and support to each other throughout our careers. And I love reconnecting at stats conferences!

JONAKI BOSE

Senior Advisor, National Center for Health Statistics

If there's something you are scared to do, then that is probably what you should do because there is a lot to learn there.

MARK OTTO

Patuxent Wildlife Research Refuge, US Fish and Wildlife Service

- Get a mentor.

- Do internships or work in a statistical consulting laboratory.

- Understand that, unlike school, all writing at work is collaborative.

- Do the basic, understandable analyses along with the 'right,' state-of-the-art one, or

- understand what decisions leadership is going to make with your analyses. More helpful but embarrassing: Don't cover my tracks. …

My clearest example was not in statistics but while working in a limnology lab. The procedures for filtering and clearing the slides, so I could count the algal species on 500 slides, did not work. I spent 95 percent of my time trying to fix the procedures. I never did, so I counted slides with hardly anything showing and submitted the counts and garbage analysis to my supervisors. To my relief, they were not used.

Later, with some statistical analyses we usually had to program ourselves and could never get to work, I was too unsure of myself to admit my failures. Finally, after some leadership training and reading about trust and learning from failure, I faced up to the shame of failing and not knowing what to do. Those admissions led to cooperative work, all trying to figure out the problems. They were not the condemnations I feared. I felt more trusted and certainly less anxious not having to watch my back.

That has led to trying harder things, expecting to fail at times but finding the best way forward with my group. Also, while leading, it has become important for me to create a safe environment for people to try, fail, and not feel they have to apologize for it. Thank you, ASA, for that training that changed my career and life. ∎

Committee on Career Development

For more advice and to receive notifications about upcoming career development events, join the Committee on Career Development's Friends of the CCD email list at *https://bit.ly/3ZKH7En*.
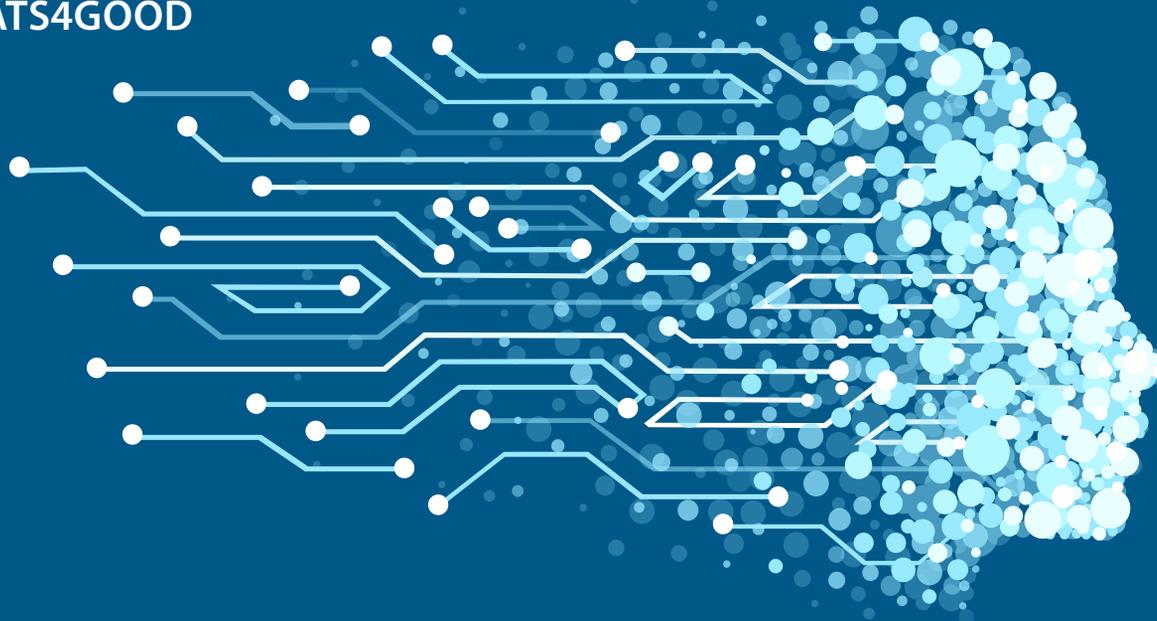
MEASURING *and* REDUCING BIAS
in Machine Learning, AI

David Corliss is lead, Industrial Business Analytics, and manager, Data Science Center of Excellence, Stellantis. He serves on the steering committee for the Conference on Statistical Practice and is the founder of Peace-Work.

In recent years, bias in machine learning and AI has become recognized as one of the most important challenges in statistics and data science and one of the most important subjects for the Data for Good community to address. Last March, the Data Foundation hosted a public forum on accelerating AI in the public sector. As an attendee and speaker, I came to realize technology isn't the greatest barrier to making an impact with data and statistics. Gaining—perhaps I should say *regaining*—the trust of the general public is.

Machine learning and AI have been held up as ways to eliminate unfair bias in human processes, from hiring decisions to the judicial system. Highly publicized failures of data science to deliver fair and equitable results have damaged our ability to use science to drive change for the greater good. So, what went wrong?

Bias can come from many sources. Selection bias occurs when a training sample is not representative of the general population to which an algorithm is applied, or when a small group is put at a disadvantage in the application of the results. Failures have included voice recognition programs that disproportionately fail to understand female voices to over-policing Black men by capturing more data in majority-Black areas (*https://bit.ly/3kf0BRl*).

Prejudice bias, also known as the "history problem," results when training data is labeled using previously biased decisions (*https://bit.ly/3XvOptU*). In this way, the algorithm is taught to recreate the very bias it is intended to eliminate: bias in = bias out.

Another important source of bias occurs when individual model features are not screened for biased results. This is especially a concern in cases in which there is a huge number of candidate predictors, résumé assessment using natural language processing, for example (*https://reut.rs/2YgVGj7*).

The amount of bias in a model or algorithm can be measured by looking at the disparate impact of model outcomes across different population

> As has been said of money in the past, machine learning and AI are wonderful tools but a terrible master. Learning to avoid sources of bias and quantifying and minimizing its impact allow the realization of the promise of these tools to benefit all.

subsets. The same process for measuring disparate impact is often used in public health studies. Log odds or odds ratios can be used to measure the amount of bias by measuring the difference in model outcomes between different groups.

Recent technological developments have improved and simplified the measurement of bias and comparison of different models. One particularly useful tool is Fairlearn (*https://fairlearn.org*), an open source Python toolkit developed and maintained by the Fairlearn Project. Fairlearn focuses on differences in selection rates for different population subgroups, such as male versus female, to quantify bias. This supports the implementation of constraints in the model to equalize the odds across population subgroups or to produce demographic parity so differences in the selection rate for different groups is minimized.

There are several good articles and blog posts about Fairlearn. I prefer "A Primer on Machine Learning Fairness Using Fairlearn" by Armand Sauzay (*https://bit.ly/3XagKpM*), which includes a link to a Kaggle project and the source code needed to produce the results described in the article.

Fairlean has its limitations, however. It is written in Python, which is open source, and most folks are able to use it. While there isn't an identical package or procedure in other languages, the functionality can be recreated. The basic metrics such as precision and accuracy are well documented in most analytic languages.

Fairlearn also doesn't automatically calculate odds ratios, but they aren't difficult to code. In my own experience, the metrics used in Fairlearn, including selection rates and confusion matrices, are great for demonstrating bias and mitigation to other statisticians. However, I find odds ratios the most persuasive metric to use with people from backgrounds such as the social sciences, business, and law.

The Metrics package in R supports bias metrics. David Dalpiaz at the University of Illinois published a good discussion about bias and the tradeoff between bias and variance, with code examples in R (*https://bit.ly/3H4ePgW*).

SAS has one for its Viya product written in Python (*https://bit.ly/3CKHAwz*), but I haven't seen a paper on bias mitigation with code in base SAS; I should write one.

As has been said of money in the past, machine learning and AI are wonderful tools but a terrible master. Learning to avoid sources of bias and quantifying and minimizing its impact allow the realization of the promise of these tools to benefit all. ∎

UConn Department of Statistics Celebrates 60th Anniversary

A special conference was a high note in a series of year-long activities celebrating the anniversary

Haim Bar and Jun Yan, University of Connecticut

A special conference with the theme "Excellence in Statistical Science" was held October 14–16, 2022, on the Storrs campus of the University of Connecticut to celebrate the 60th anniversary of the department of statistics. About 150 people attended.

The opening was chaired by the department head, Ming-Hui Chen. Welcome remarks were delivered by UConn president, Radenka Maric; dean of the college of liberal arts and sciences, Juli Wade; and ASA executive director, Ronald Wasserstein.

The academic part of the program featured keynote addresses from renowned statisticians and signature departmental lectures. The keynote addresses were given by Nancy Reid of the University of Toronto about distributions of parameters and David Blei of Columbia University about the blessing of multiple causes. The 2022 Makuch Lecture honored Clarice Weinberg from the National Institute of Environmental Health Sciences. Her talk was titled "Using Families to Identify Genetic and Environmental Contributors to Young-Onset Disease." The

Nancy Reid talks about distributions for parameters during her keynote address at the UConn conference.

Distinguished Alumni Lecture was delivered by 2022 awardee, Bani Malick of Texas A&M, and titled "Bayesian Local Models Using Partitions."

In addition, two invited sessions on data science featured nine speakers from government, industry, and academia. The first session included Malini Iyengar of Teva Pharmaceuticals, Patrick J. Cantwell of the US Census Bureau, Brien Aronov of Travelers Insurance, Marcos Oliveira Prates of the Federal University of Minas Gerais,

and Nathan Lally of HSB. The second session included Steve Leeds of Ironwood Pharmaceuticals, Xia Wang of the University of Cincinnati, Chun Wang of Liberty Mutual Insurance, and Zoe Hua of Servier Pharmaceuticals.

One highlight of the event was a panel discussion, titled "UConn Statistics Department: Past, Present, and Future." The panel was moderated by Ofer Harel, associate dean for research and graduate affairs. Panelists included several former and current faculty members with leadership roles in the department or college: Robert Riffenburgh; Uwe Koehn; Alan Gelfang; Tim Kileen; Nitis Mukhopadhyay; Dipak Dey; Joseph Glaz; and Ming-Hui Chen. In his nineties, founding head Riffenburgh attended the discussion live online. The panelists shared their perspectives and memories of the department throughout the past 60 years, as well as their thoughts about its bright future.

A Travelers student poster session attracted 18 submissions, many from current students. The posters were evaluated by a judging committee consisting of Feng Guo, Neil Spencer, Xia Wang, Xiaojing Wang (chair), and Yao Zheng. Awardees include Jackson Lautier for "Consumer Credit Risk Convergence: The Case for Performance-Based Interest Rate Reductions in Consumer Automobile Loans" and Jianmin Chen for "Tree-Guided Rare Feature Selection and Logic Aggregation with Electronic Health Records Data."

Two career panels were geared toward students in statistics and data science. The first was on data science and moderated by Yishu Xue of Google. Panelists were Edan Bar of Bloomberg, Ved Desphande of Spotify, Ron Wasserstein of the ASA, and Haining Zhang of Travelers. The second panel was on statistics in pharmaceuticals and moderated by Yaohua Zhang of Vertex. Panelists included Joe Cappelleri of Pfizer, Dooti Roy of Boehringer Ingelheim, and Naitee Ting of Boehringer Ingelheim. Cappelleri and Ting are longtime adjunct professors in the department.

UConn Statistical Consulting Services was showcased at the conference. Statistical Consulting Services director, Timothy Moore, gave an overview of the history and current status of the service. Two student consultants, Eric Baron and Jung Wun Lee, shared their recent consulting projects.

The academic program concluded October 15 with an awards ceremony. The 2022 Distinguished Alumni Award winner, Bani Malick, handed plaques to this year's honorees of departmental student awards, which included best performance in several core courses, a teaching award, and a service award.

The social part of the program included a banquet attended by 50 participants, a Jeopardy game night featuring statistics topics, and a field day with breakfast. Student leader Eric Baron organized the game night and field day.

The conference was a high note in a series of year-long

Clarice Weinberg, 2022 Makuch Lecturer and senior investigator at the National Institute of Environmental Health Sciences, discusses using families to identify genetic and environmental contributors to young-onset disease.

activities celebrating the department's 60th anniversary, including the 35th New England Statistics Symposium May 22–25, UConn STAT 2022 JSM Alumni and Friends Lunch on August 10, Statistics in Pharmaceuticals Conference August 22–23, 4th UConn Sports Analytics Symposium on October 8, and Pfizer Colloquium on October 19.

For more information about the celebration and University of Connecticut, visit *https://bit.ly/3GG7SRw*. ∎

Three Win Travel Awards to Conference on Statistical Practice

The following student winners received registration and travel support to attend the Conference on Statistical Practice:

JOHN J. BARTKO AWARD
Michael Palazzolo
Palazzolo completed his master's degree in biostatistics from Grand Valley State University in 2021 and then joined the TIMI study group team at Brigham and Women's Hospital. In his

Palazzolo   Jin   Gibson

research, he frequently comes across topics such as quality machine learning, Bayesian inference, and methods of analyzing longitudinal data.

LESTER R. CURTIN AWARD
Yuxuan (Daisy) Jin
Jin graduated from the master's program in biostatistics

from Washington University in St. Louis in January of 2018. She is a biostatistician working at the Cleveland Clinic, where she collaborates primarily with clinicians from the Orthopedics and Rheumatology Institute.

LINGZI LU MEMORIAL AWARD
Lydia Suzanne Gibson
Gibson is a master's student in statistics at California State University, East Bay. She co-founded the CSU, East Bay student chapter of the ASA and advocates for students to become involved in, or start their own, student chapter. ∎
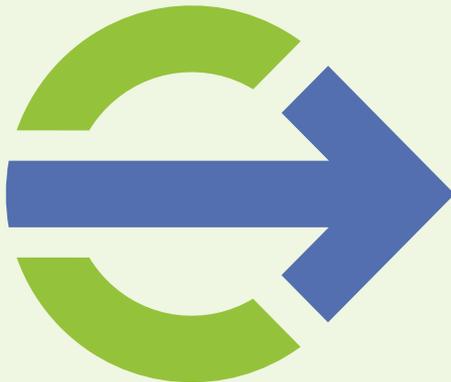
Ching Tian recently joined Emmes—a global, full-service clinical research organization dedicated to supporting the advancement of public health and biopharmaceutical innovation—as chief innovation officer.

Emmes Chief Executive Officer Christine Dingivan said, "Ching brings a wealth of data and digital experience, which will be immediately useful as we accelerate our transition to decentralized trials. Her role is to work across the company to integrate technology and processes that strengthen the way we'll address clinical trials of the future."

Tian said, "As a biostatistician by training, I have spent many years leading functional operations and optimizing the clinical trial processes through technology with a data focus. What attracted me to Emmes were Dr. Dingivan's vision of Emmes as a tech-enabled CRO; the company's roots in biostatistics; its 45-year history; and science-based, high-quality clinical research reputation.

Before joining Emmes, Tian was senior vice president of strategy and solutions at Medable, where she created and was responsible for its decentralized clinical trial product strategy. Her previous role at Novartis, where she was general manager, data and digital, in global drug development, also included accountability for driving the decentralized clinical trial strategy, programs, and platforms.

In addition, Tian's clinical research organization and pharma experience included leadership positions at PPD and MedImmune/AstraZeneca, where she held roles of increasing responsibility in areas such as global pharmacovigilance systems, early clinical development services, global clinical informatics, data management, statistical programming, and clinical technology operations.

Tian holds a master's degree in biostatistics from the University of Minnesota and a bachelor's degree in industrial engineering from Hangzhou Dianzi University in China.

"Ching knows this industry and what our clients want and need from a CRO," noted Dingivan. "Her experience at Medable, where she worked to ensure that technology was not built in a vacuum but integrated with the business, will be valuable in her new position at Emmes. Her experience across technology, CRO, and biopharma companies is a unique asset for leading our Advantage eClinical platform development and commercialization activities." ∎

ASA members **Kelly H. Zou, Lobna A. Salem**, and **Amrit Ray** recently completed a book titled *Real-World Evidence in a Patient-Centric Digital Era* that won Viatris the Most Valuable Data and Insights Initiative Award from the 2022 Reuters Events Pharma Awards.

The book provides methods, perspectives, examples, and insights on the innovative application of real-world evidence to meet patient needs and improve health care, with a focus on the pharmaceutical industry. The authors pay special attention to the development, methodologies, and other salient features of the statistical and data science techniques that are customarily used to generate real-world evidence. The book includes a review of key topics and emerging trends in cutting-edge data science and health innovation.

Learn more about the book at *https://bit.ly/3GyyLXE* and more about the Reuters Pharma Awards at *https://bit.ly/3ZLWGMf.* ∎
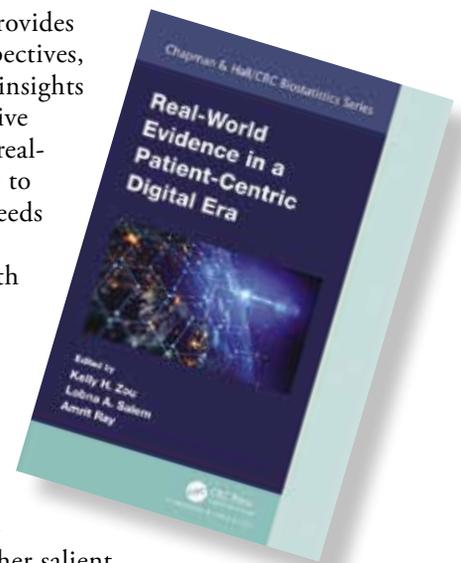
Obituary

Ray A. Waller

Ray Waller, an ASA Founder and former executive director, passed away suddenly on December 28, 2022.

Waller earned his BA in mathematics from Southwestern College in 1959 and his MS in statistics from Kansas State University in 1963. He graduated from the Johns Hopkins University with a PhD in mathematical statistics and minor in operations research in 1967, and then joined the faculty of Kansas State University, where he taught undergraduate and graduate statistics courses, provided statistical consulting services, and directed the theses of several students.

In 1974, Waller joined the Los Alamos National Laboratory's Statistics Group, where he ultimately became the directorate office leader for university research and science education. In 1995, he became executive director and secretary of the ASA.

Waller and his wife, Carolyn, established the ASA's Waller Education Award and Waller Distinguished Teaching Career Award in 2002. They also set up a scholarship for statistics students at Kansas State University.

In 2004, Waller received the ASA Founders Award for his many contributions to both the profession and asso-

Ray and his wife, Carolyn, during the 2005 Joint Statistical Meetings in Minneapolis, Minnesota.

ciation, including his service as executive director and secretary from 1995–2001. He was honored for improving service to members, the internal efficiency of the ASA office through effective reorganization and well-chosen hiring, attention to detail, and a continuing sense of responsibility for the welfare of the ASA and its members.

Throughout his career, Waller led several successful teams of statisticians, systems analysts, engineers, economists, education professionals, and scientists in collaborative interdisciplinary research projects involving innovative applications of statistics. He has been published in several academic journals, including the *Journal of the American Statistical Association, Technometrics*, and *Annals of Statistical Mathematics*.

The ASA staff offer his family our deepest sympathies. He will be missed.

Obituary

Winston Ashton Richards

ASA Fellow Winston Ashton Richards passed away peacefully surrounded by his loving wife, Kathleen, and his children, in-laws, and grandchildren on December 19, 2022, at his home in Durham, North Carolina.

Born in Chaguanas, Trinidad and Tobago, to the late Edward Richards and Leanora Nimblett-Richards, Richards came to the United States in 1955 and earned degrees from Marquette University and University of Western Ontario.

Richards was a distinguished professor of mathematics and statistics at Penn State University, Harrisburg, and a visiting professor at Stanford University and the University of the West Indies.

Committed to helping others, Richards created the Winston A. Richards Prize in Statistics, which is given to the best-performing statistics student and presented at the annual faculty of science and technology awards event in the department of science and technology at the University of the West Indies.

Read Richards's complete obituary at *https://bit.ly/3W3YvB3*.

Richards

How Can We Help?

We want to help you share your own news with colleagues and showcase your latest successes.

It is important to us that everyone knows about your research, recent awards, and promotions!

If you have any news you would like to share, email *megan@amstat.org*.

Nominations Open for Annie T. Randall Innovator Award

The award was established by the Biometrics Section and provides a $2,000 prize each year

The Annie T. Randall Innovator Award was established to recognize early-career statistical innovators across all job sectors with any level of educational attainment. The award was named in honor of path-breaking Black female statistician Annie T. Randall for her pioneering career in government amid pervasive racial discrimination. Her powerful story and legacy in statistics are inspiration for future generations of trailblazers. Established in 2020 by the Biometrics Section, the award provides a $2,000 prize each year.

Selection Criteria

Members of the Annie T. Randall Innovator Award Committee select the winner. To be eligible, candidates should be in the early phase of their professional statistical careers. While no more than 10 years into their career is a guideline, career interruptions and transitions are

Annie T. Randall's legacy is an inspiration for future generations of trailblazers.

not considered in this count. Committee members appreciate that nontraditional paths are common for trailblazers, so there is no firm cutoff for what is considered early phase. There are also no degree requirements for this award.

A personal statement or nomination letter should discuss how the candidate has pushed boundaries in statistics toward the betterment of the field and society, as well as how they embody Annie T. Randall's tenacious and resolute commitment to excellence. How the candidate meets the broad definition of early career described above should also be addressed in the personal statement or nomination letter.

Nominations

Self-nomination or nomination by someone other than the candidate is welcome. Individuals from underrepresented and historically excluded groups in statistics are encouraged to apply. Submissions are due by March 15 and should include the following:

- Candidate résumé or CV

- Candidate personal statement or nomination letter (1–2 pages)

Send nominations and any questions to award committee chair Sherri Rose at *sherrirose@ stanford.edu*. ∎

The award was named in honor of path-breaking Black female statistician Annie T. Randall for her pioneering career in government amid pervasive racial discrimination.

ASA Pride Scholarship

Nominations will be accepted for the ASA Pride Scholarship until March 31. To be eligible, candidates must meet the following conditions:

- Be enrolled in a statistics or data science graduate program or have earned a statistics or data science degree within five years of the award date

- Identify as LGBTQ+ or an ally

The ASA Pride Scholarship was established to raise awareness for and support the success of LGBTQ+ statisticians and data scientists and allies. The scholarship celebrates their diverse backgrounds and highlights the invaluable skills and perspectives they bring to the ASA, statistics, and data science.

The ASA will appoint an award selection committee with input from the Justice, Equity, Diversity, and Inclusion Outreach Group and ASA LGBTQ+ Advocacy Committee.

Visit the ASA Pride Scholarship page at *http://bit.ly/3Ifd3ap* for details. ∎

Bryant Scholarship

Applications are being accepted for the Edward C. Bryant Scholarship for an Outstanding Graduate Student in Survey Statistics until March 1. One scholarship recipient is selected annually and receives a certificate and cash prize of $2,500.

Selection of the scholarship recipient is made by the ASA Bryant Scholarship Award Committee based on the following criteria:

- Potential to contribute to survey statistics

- Applied experience in survey statistics

- Performance in graduate school

Westat established the Edward C. Bryant Scholarship Trust Fund in 1995 to honor its cofounder and chair emeritus and help support a student's graduate education. Under Bryant's leadership, Westat—an employee-owned statistical firm established in 1961—has grown into one of the world's leading statistical research corporations serving federal, state, and local governments, as well as businesses and foundations.

Learn more about the scholarship at *https://bit.ly/3QFERtT*. ∎

Biopharmaceutical Section Scholarship

The American Statistical Association Biopharmaceutical Section offers a $3,000 award for up to five students as part of the ASA awards program. The goal is to recognize notable research, academic achievement, and applied project work related to biopharmaceutical statistics. Award committee members also consider general academic performance, leadership, volunteering, and service.

Requirements

- Applicants must have a bachelor's degree and be enrolled in a master's or doctoral program in statistics or biostatistics.

- While membership in the Biopharmaceutical Section is not required, ASA membership is.

Applications can be submitted until March 15. Winners will be announced in mid-April and included in the ASA awards program.

For details, visit *https://bit.ly/3k4Mii0*. ∎

Deadlines and Contact Information for Select ASA National Awards, Special Lectureships, and COPSS Awards

AWARD	DEADLINE	QUESTIONS & NOMINATIONS
Statistics in Physical Engineering Sciences Award	February 20	awards@amstat.org
Gertrude M. Cox Scholarship	February 23	awards@amstat.org
Edward C. Bryant Scholarship Trust Fund	March 1	awards@amstat.org
Excellence in Statistical Reporting Award	March 1	awards@amstat.org
ASA Fellows	March 1	awards@amstat.org
ASA Mentoring Award	March 1	awards@amstat.org
Outstanding Statistical Application Award	March 1	awards@amstat.org
Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Award	March 1	awards@amstat.org
Annie T. Randall Innovator Award	March 15	Sherri Rose (sherrirose@stanford.edu)
Biopharmaceutical Section Scholarship Award	March 15	Biopharmaceutical Community Website (community.amstat.org/biop/awards/scholarship)
Founders Award	March 15	awards@amstat.org
ASA Pride Scholarship	March 31	Donna LaLonde (donnal@amstat.org)
Government Statistics Section Wray Jackson Smith Scholarship	April 1	David Banks (banks@stat.duke.edu)
Causality in Statistics Education Award	April 5	awards@amstat.org
Links Lecture Award	July 1	awards@amstat.org
Dorothy Marie Lamb and Annette Lila Ryne Memorial Scholarship	July 15	awards@amstat.org
Health Policy Statistics Section Achievement Awards	September 15	www.asahealthpolicy.org/for-students
Lester R. Curtin Award	October 15	awards@amstat.org
Deming Lecturer Award	October 15	awards@amstat.org
Lingzi Lu Memorial Award	October 15	awards@amstat.org

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Statistical Computing

Kun Chen, Linglong Kong, Sam Tyner-Menroe, Jun Yan, and Hua Zhou

The ASA Section on Statistical Computing held a half-day online symposium, titled "Statistical Computing in Action," November 12, 2022. The event attracted more than 110 participants, about half of whom were students. Held as part of the section's membership drive, the symposium was designed to showcase the power and beauty of statistical computing to students, help practitioners sharpen their statistical computing skills, and foster community across different computing languages.

The symposium started with a brief background introduction of the event by the section's 2022 chair, Jun Yan. ASA Executive Director Ron Wasserstein then delivered opening remarks on behalf of the ASA leadership and reminded the audience that 2022 marked the 50th anniversary of the Section on Statistical Computing. "The organizers have ambitious goals and assembled a fabulous team of presenters for a real treat," said Wasserstein.

The symposium featured a keynote talk, data jamboree,

Statistical Computing Section History

Officially established in 1972, the Statistical Computing Section has a unique position in the era of data science. The widely accepted three pillars of data science are statistics, computing, and domain knowledge; this section spans two of them. The section's mission is to promote computational applications that solve problems arising in statistics and data science. Through these efforts, section members advocate for efficient and user-friendly computational applications arising from methodological and software developments. In addition, they encourage the joint application of computational statistical and data science techniques in other fields.

and panel discussion. Douglas Bates, professor emeritus of the University of Wisconsin-Madison, gave the keynote, titled "Cross-Language Technologies for Statistics and Data Science." He shared three tools he has used with R, Python, and Julia that make the transition between languages easier: 1) the Arrow storage format, a language-neutral format for storing and easily reading tabular data; 2) Quarto, which is an RMarkdown format and processor for literate programming; and 3) the VS Code editor, which provides editing and code evaluation for all three languages and Jupyter notebooks.

The data jamboree, chaired by Lucy D'Agostino McGowan of Wake Forest University, was

> # The organizers have ambitious goals and assembled a fabulous team of presenters for a real treat.
>
> *— Ron Wasserstein, opening remarks for symposium*

a party of computing tools for solving the same data science tasks. Josh Day of Julia Computing led the Julia workshop, Dan Chen of the University of British Columbia led the Python workshop, and Sam Tyner-Monroe of Tritura led the R workshop. All three workshop leaders independently uncovered the same problems in the data, and each showed a unique perspective for how they approached the analysis. There was strong agreement among all presenters on the 'trust but verify' principle in data processing and modeling. The main data set was a subset of the New York City motor vehicle collisions data from NYC open data. The tasks were adapted from an introduction to data science course taught by Jun Yan at the University of Connecticut.

Kun Chen of the University of Connecticut moderated the panel discussion, titled "Frontliners and Next Frontiers of Statistical Computing in Data Science." The panelists were Hannah Frick of Posit, Haoda Fu of Eli Lilly, Eric Kolaczyk of McGill University, and Teresa Sönmez of 23andMe. They discussed career development and the future of statistical computing and shared their experiences as statisticians and data scientists, including their work and research; skills for career success; differences in different career paths; diversity, equity, and inclusion; and specific suggestions for job searches and

interviews. The panelists also shared their predictions and hopes for important research areas, available career opportunities, and computing tools for statistical computing in the next 5–10 years.

The symposium generated many volunteer opportunities for section members and served as an interface for members of different computing communities to exchange ideas.

Videos of the section's events are available on the section's YouTube channel at *www.youtube.com/@statgraphics*. The

Take a Peek

Videos of the section's events are available on the section's YouTube channel at *www.youtube.com/@statgraphics*.

code used in the data jamboree is available from *https://bit.ly/3CNPjtI*.

For details about the symposium, including a list of those on the organizing committee, visit *https://bit.ly/3COTaH0*. ∎
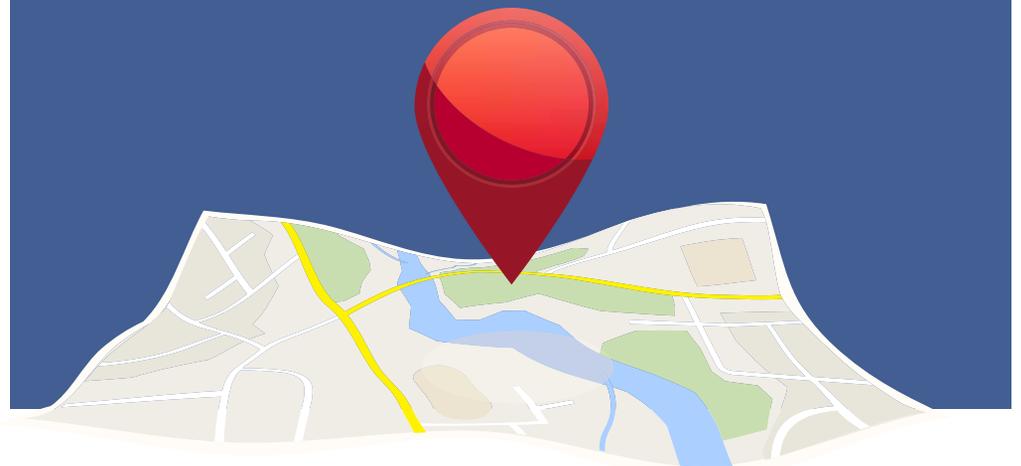
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ASA

Quality and Productivity

Xinwei Deng, Section Chair

The Quality and Productivity Section sponsored two invited sessions, two topic-contributed sessions, one student best paper competition session, and five contributed sessions at the 2022 Joint Statistical Meetings in Washington, DC. The in-person presentation and discussion appeared to have been more effective for exchanging ideas. Unfortunately, Q&P did not organize its section mixer due to time constraints, but the section mixer will return for JSM 2023 in Toronto, Ontario, Canada.

Another important activity for the section is nominating members to become ASA Fellows. In 2022, members of the Q&P Fellow Nominations Committee put forth three nominations and one was successful. Q&P will continue to develop a list of strong candidates each year.

The section honored Sharad Prabhu, treasurer, with an outstanding service award for making the financial processes for the Fall Technical Conference as consistent as possible with those of the Quality and Productivity Research Conference.

The Q&P Section is now the primary sponsor of both QPRC and FTC, which are targeted to those engaged in engineering statistics. The financial status of both conferences is healthy, and the Q&P Executive Committee

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will continue to increase the impact of the conferences on the ASA community and beyond.

The Q&P Executive Committee has continued to embrace virtual meetings for their flexibility in terms of location and time. Virtual meetings will continue in combination with occasional in-person meetings at the Joint Statistical Meetings, QPRC, and FTC.

The Q&P Executive Committee also established a task timeline document, which lists the section's major activities with their corresponding personnel and deadlines. The document will make deadlines much clearer, and the executive committee will try to associate each major activity with two or three officers for better coordination.

Q&P Past Chair Richard Warr completed the charter revision, and the updates are well documented in the GitHub repository. Annie Zangi provided meeting minutes to enable officers to efficiently make progress on their agendas.

Recruiting volunteers and young personnel, such as junior faculty and researchers, into the Q&P community and leadership positions would further improve the section. Enhancing the section's diversity and outreach to a range of areas related to quality and productivity, especially AI and data science, would also be beneficial.

The Q&P Section is in an outstanding position to thrive under 2023 Section Chair Sarah Burke. ■

New York

■ Department of Biostatistics at the University at Buffalo invites applications for tenure-track assistant/associate professor expected to develop an extramurally funded independent research program, with emphasis on graduate-level teaching, mentoring graduate and undergraduate students, developing interdisciplinary collaborations and engaging in service activities. PhD in statistics/biostatistics or related quantitative fields required with experience and/or strong interest in interdisciplinary research preferred. Anticipated start August 2023. Apply online: *www.ubjobs.buffalo.edu/postings/39317*. University at Buffalo is an affirmative action/equal opportunity employer and, in keeping with our commitment, welcomes all to apply including veterans and individuals with disabilities.

■ The Department of Biostatistics at Columbia University's Mailman School of Public Health seeks applicants for multiple open-rank tenure-track and tenured faculty position(s). Competitive candidates will hold a doctorate degree in biostatistics, statistics, or a related quantitative field by the start date. Review of applications begins in winter 2022. Submit requested materials as posted at: *https://academic.careers.columbia.edu/#!/108316*. Columbia University is an Equal Opportunity Employer -- Disability/Veteran.

Visiting Assistant Professor of Statistics

The Williams College Department of Mathematics and Statistics invites applications for a one-year visiting position in statistics, to begin fall 2023. Candidates should have earned a Ph.D. in statistics, biostatistics or a similar field by summer of 2023.

Visiting Assistant Professors are asked to teach four courses per year and make small contributions to service activities in the department. Furthermore, they will be invited to participate in all aspects of the department, providing a window into the experience of being a statistician at a liberal-arts college. For example, they have the option to advise students in our undergraduate colloquia (our capstone experience for seniors).

Our department offers a vibrant undergraduate program with majors in mathematics (including an applied mathematics emphasis) and statistics; for more information, see *https://math.williams.edu*. The multidisciplinary environment is a rich and collegial setting for student education and faculty research. Williams College provides the opportunity to apply for student research assistant support, an annual allocation of funds to support travel and research, and a shared computer cluster for parallel computation. Visiting Assistant Professors are also eligible to participate in the college's comprehensive First Three professional development program (*https://faculty-networks.williams.edu/first3/*).

Approximately one hour from the Albany, NY airport, Williams College is located in Williamstown, a thriving destination proximate to three major art museums and access to theater, music, and dance festivals, community supported agriculture farms, a highly-rated public school system, and many other resources. Williams has an enrollment of approximately 2100 undergraduates, roughly 15% of whom major in mathematics or statistics. Our department is a warm community of mathematicians and statisticians who are deeply dedicated to research, teaching, and mentoring undergraduates, and are committed to making everyone feel welcome and included. We encourage all applicants who are enthusiastic about both research and teaching to apply.

Please submit your application via MathJobs at *https://www.mathjobs.org/jobs/list/21830*

Your application should include the following components:

> 1) A cover letter. This should provide a brief summary of your professional experience and future goals, and should address your interest in working at Williams College in particular.

> 2) A current CV.

> 3) A research statement.

> 4) A teaching statement. This should address your teaching philosophy and experience, ways in which you foster an inclusive learning environment, and other reflections or relevant information you would like to share.

> 5) Three recommendation letters, at least one of which addresses your teaching experience.

If you have questions about this position, contact the Chair of the Hiring Committee, Richard De Veaux (*rdeveaux@williams.edu*). Applications will be accepted until the positions are filled, but all applications received by February 1, 2023 will be guaranteed full consideration. All offers of employment are contingent upon completion of a background check. Further information is available at *https://faculty.williams.edu/prospective-faculty/background-check-policy*.

Williams College is a liberal arts institution located in the Berkshire Hills of western Massachusetts. The college has built its reputation on outstanding teaching and scholarship and on the academic excellence of its approximately 2100 students. Please visit the Williams College website (*http://www.williams.edu*). Beyond meeting fully its legal obligations for non-discrimination, Williams College is committed to building a diverse and inclusive community where members from all backgrounds can live, learn, and thrive. We encourage applications from members of underrepresented groups with respect to gender, race and ethnicity, religion, sexual orientation, disability status, socioeconomic background, and other axes of diversity.

■ The Department of Biostatistics at Columbia University's Mailman School of Public Health seeks applicants for multiple open-rank non-tenured track faculty position(s). Competitive candidates will hold a Doctorate degree in biostatistics, statistics, or a related quantitative field by the start date. Review of applications begins in Winter 2022. Submit requested materials as posted at: *https://academic.careers.columbia.edu/#!/108321*. Columbia University is an Equal Opportunity Employer -- Disability/Veteran.

Rhode Island

The Brown University School of Public Health is pleased to announce a school-wide opening for an associate or full professor, tenure-track, with emphasis in Health Data Science. Areas of interest include statistical and data-analytic methodology, health information systems, machine learning, text mining, societal impact of artificial intelligence, algorithmic fairness in health, multimodal data modeling, data-driven policy evaluation and decision-making, and data integration. Apply at *http://apply.interfolio.com/98685*. ■

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This month's Top 10 is the
'Top Ten **Pieces of Bad Statistical Advice**.'

Amstat News continues its hilarious offering by ASA Executive Director Ron Wasserstein of a special Top 10 that aired during a recent edition of the *Practical Significance* podcast.

Wasserstein explains, "It's the beginning of a new year, and everyone has advice for getting off to a good start. Always wanting to be helpful, the *Practical Significance* podcast typically has some sage statistical advice for you. However, this month's Top 10 is the 'Top Ten Pieces of Bad Statistical Advice.'"

Wasserstein

PODCAST

To listen to the *Practical Significance* podcast, visit *https://magazine.amstat.org/podcast*-2.

10
Data are missing? Just put in zero.

09
Use a pie chart. Nothing beats a pie chart.

08
It doesn't matter what type of data you have.

07
You can always just group your continuous variables into arbitrary categories.

06
And the fewer categories the better.

05
Don't ask questions. Just run the software.

04
You don't need a statistician until you have your data.

03
If you don't know what assumptions you've made, then you don't have to worry about them.

02
There are no small data sets, only small statisticians.

#01
If you don't know what to do, ask Ron Wasserstein.

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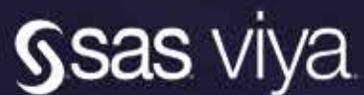
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