Bi-monthly Newsletter of August & September, 2022

Founded in 1935, GW's Department of Statistics was the first statistics department in a College of Arts and Sciences in the United States. Since then, the department has continually produced high quality research in both theoretical and applied areas of statistics and probability. The department offers both M.S. and Ph.D. programs of full-time and part-time enrollments. The great location of being in the heart of Washington, D.C. gives students unique access to the research and employment opportunities in the major government agencies and private companies and connection with the distinguished statisticians from the local Washington Statistical Society.

Message from the Editors

Dear PhD students,

We are happy to be the new co-chairs of the PhD student committee and new editors of the GWU STAT Newsletter. We thank the previous co-chairs (Drs. Xiang Li and Yang Liu) for their efforts in running the committee and we will devote ourselves to continuing serving and helping our fellow students. We are also grateful for the constructive support and advice we received from the professors in our department for guiding the committee and launching the newsletter. We hope to use this newsletter to inform our peers about the local and nationwide statistical events, introduce collaboration opportunities with other researchers, celebrate the achievements and milestones of our faculties and students, and eventually build a great community within our department.
We invite students to join the PhD student committee or the editorial team and contribute to the Newsletter. Ultimately, we hope every student will have an enriched and great experience in the statistics department and we all become better and stronger as a whole community.
Thank you, we hope you find the Newsletter informative.

Jiaqian Yu and Yipeng Wei (Editor/Co-Chair of PhD Student Committee)

Conferences and Workshops

Statistics Conferences

Some international and area statistical conferences will take place soon. Students are encouraged to attend these conferences.

- ➢ **Recent Advances in Statistical Inference, Fall 2022** is a Distinguished Theme Seminars Series held by Purdue University, Department of Statistics. It will take place in **September** and **online access** via Youtube is available.
- ➢ The Southern Regional Council on Statistics (SRCOS) will be hosting their **Summer Research Conference** (SRC) in **October** at Jekyll Island, GA. Student registration fee is only $100. The organizers also have funding available for graduate students and junior researchers who present posters.
- ➢ **The 2022 Women in Statistics and Data Science Conference** will be held on **October 6-8, 2022** in St. Louis, Missouri. It will highlight the achievements and career interests of women in statistics and data science. Communities will unite to present their life's work and share their perspectives on the role of women in today's statistics and data science fields.

Local Conferences

There will also be local conferences held in the DMV area. Please find the information below and consider attending.

- ➢ **Tapia (The Richard Tapia Celebration of Diversity in Computing Conference)** is a conference designed to promote diversity, connect undergraduate and graduate students, faculty, researchers, and professionals in computing from all backgrounds and ethnicities. It will take place **September 7-10, 2022** in Washington, D.C.
- ➢ **The ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop** is sponsored by the ASA Biopharmaceutical Section in cooperation with the FDA Statistical Association. This year, it will be held during **September 20 – 22, 2022** at Rockville, MD and will offer short courses, concurrent sessions, roundtables, poster sessions, and many opportunities to network.
- ➢ **Fall Super Review Conference** will be hosted by DC-AAPOR and WSS to provide a sample of exemplary presentations (both talks and posters) that have been taking place at national and international conferences during the pandemic. It will take place on **November 8, 2022** in Washington, DC. Mark your calendars and be on the lookout for the call for abstracts coming soon!

Career Events

GW career workshops and opportunities. Check the Handshake website for more events
STEM Job Search Group (4 sessions)
Fri September 9 to Fri September 30, 2022 3:30pm - 5:00pm EDT
The 4-session virtual workshop series is designed for STEM majors seeking unique and traditional approaches to a successful job or internship search or post-GW career in challenging times. As the STEM Industry Career Coach, Dr. Sonya Merrill will facilitate 4 sessions weekly until September 30. The sessions will cover topics critical to a successful career search such as search strategies, professional competencies, assessments, resumes, cover letters, interviewing, and networking.
Gartner Consulting Virtual Information Session - A Presentation for Graduate Students
Monday, September 12, 2022 @ 8:30 - 9:30 pm
Virtual GW STEM + Health Career Connection Fair
Friday, October 7 @ 2:00 - 6:00 pm
The virtual GW STEM + Health Career Connection Fair is an opportunity for undergraduate and graduate students seeking research, internship, and full-time employment opportunities to connect with potential employers from clinical research and science to biotech, engineering, and public health.
Leveraging Linked In Workshop with LinkedIn Success Manager
Tuesday, October 18 @ 4:00 pm
Work with LinkedIn's success manager Joe Moore to explore ways you can leverage LinkedIn and LinkedIn Learning to continually reach your career goals.

Statistics Department Events

Statistics Department Seminars
Confirmed departmental Seminars (other ones will be finalized later)
- Sep 16 11am-noon in person at MPA 309: Aritra Halder (Drexel University)
- Oct 28 11am-noon in person at MPA 309: Mikyoung Jun (University of Houston)
- Nov 18 10am-11am by Zoom: Dylan Small (University of Pennsylvania)

ASA student chapter events
The ASA student chapter is a student organization in the statistics department run by current Stat PhD and master students. It provides a platform for all students who are interested in Statistics to connect with each other. Events including internship experience sharing, alumni career panel, PhD application workshop will be held to help members with both professional development and academic research. Please stay tuned for the upcoming info session on **09/16** and other events!

Student Committee event
The PhD Welcome Party and GTA orientation is **Today (9/9)**! We are also planning fun events like hiking or outings for this semester! Stay tuned for the announcement.

Student Seminar
The Department will hold a student seminar on a Friday in Oct/Nov this semester (Fall 2022). Two students will give a presentation about their research.

STAT DAY
There will be a STAT day event in the first or second week of April.

Kudos & Milestones

👏 Professor Judy Wang and Professor Qing Pan will serve as department chair and department deputy chair.

👏 Warm welcome to the 8 new PhD students for joining our department! They are Gefei Lin, Han Su, Renjie Luo, Xinyue Zhao, Kieran Zhou, Junyu Chen, Navid Nezamabadi and Hana Sagor.
We are introducing 2 of them in this newsletter but please feel free to say hi to all of them!

👏Congratulations to Professor Judy (Huixia) Wang for delivering the JSM 2022 Medallion Lecture II, "Extreme Conditional Quantiles".

👏Congratulations to GW Alumna Professor Susan Ellenberg, PhD '80, for receiving the 2022 Karl E. Peace Award!

👏We held a GW Alumni Reception at the 2022 Joint Statistical Meetings Conference and welcomed back our alumni!

👏Congratulations to the graduating Phd students for successfully defending their dissertations this year and getting their Doctoral degree!

⛵Ph.D. graduate Dr. Mingze Zhang defended his dissertation in March and joined JPMorgan Chase & Co.
⛵ Ph.D. graduate Dr. Bingqi Han defended her dissertation in March and joined Capital One.
⛵ Ph.D. graduate Dr. Yufei Guo defended her dissertation in March and joined Incyte.
⛵ Ph.D. graduate Dr. Shuyang Gao defended her dissertation in March.
⛵ Ph.D. graduate Dr. Yang Liu defended his dissertation in March and joined Renmin University of China in a tenure track position.
⛵ Ph.D. graduate Dr. Shunyan Luo defended his dissertation in March and joined Amazon.
⛵ Ph.D. graduate Dr. May AlHusseini defended her dissertation in April.
⛵ Ph.D. graduate Dr. Xiang Li defended her dissertation in July and joined Capital One.
⛵ Ph.D. graduate Dr. Rui Miao defended his dissertation in July and will join UC Irvine for a postdoctoral position.
⛵ Ph.D. graduate Dr. Wu Xue defended his dissertation in July and will join Meta.

Faculty & Student Research

Professor of Statistics [Huixia Judy Wang](#) was named by the Institute of Mathematical Statistics (IMS) as [one of the 2022 IMS Medallion Lecturers](#). Each Medallion Lecturer will receive a medallion in a brief ceremony preceding the lecture in August. The IMS gives awards to recognize individuals who have excelled in a number of ways. Dr. Wang will be giving the Medallion Lecture titled "Extreme Conditional Quantiles" at the Joint Statistical Meetings.

Dr. Wang has served as a rotating program director in the Division of Mathematical Sciences of the National Science Foundation since September 2018. Besides the statistics program, she also has managed various multidisciplinary programs such as Transdisciplinary Research in Principles of Data Science Phase II (TRIPODS), DMS/NIGMS, Algorithms for Threat Detection (ATD), Algorithms for Modern Power Systems (AMPS), Mathematical and Scientific Foundations of Deep Learning (MODL), Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science (SCH), etc.

Research of Professor Pan & her recent interview: [Proof of Life: How Data Impacts the Real World](#)

Prof. Pan is serving as the deputy chair of the department. She earned her B.A. from Peking University, China and Ph.D. from University of Michigan. Pan's research areas in statistics include Survival analysis, clinical trials, bioinformatics, network analysis and legal statistics. She has developed statistical methodologies for selection bias, correlated longitudinal and survival processes, interval censored screening data, diagnostic studies and gene networks based on similarity and connectivity. Prof. Pan has also been active in interdisciplinary research with collaborators, she applies biostatistical methods in the legal fields and develops procedures for detecting discrimination in jury selection, equal employment cases and the monetary award for prevailing plaintiffs. She is the recipient of [the 2022 Gertrude M. Cox Award](#). Here are her recent Publications: https://blogs.gwu.edu/qpan/

Exercise suggested by Professor Nayak.
We invite our fellow students to look at the problem given in the appendix and discuss it in groups.

Appendix

New PhD students introduction

Xinyue Zhao: Hello, my name is Xinyue Zhao and I'm from Dalian, China. I finished my bachelor study at the University of Michigan and my master study at Columbia University. I really enjoy cooking during my spare time. I look forward to joining the Statistics family at George Washington University.

Renjie Luo: Hi there! This is Renjie Luo from Chengdu, China, the hometown of pandas, hot-pots and dan dan noodles. I got my bachelor's degree in Finance from Southwestern University in 2018 and first master's degree in Business Analysis from Syracuse University 2020 with a merit scholarship. This May, I got my second master's degree in Statistics from GWU and will be a new GWU PhD student in Statistics from September. As a new PhD student in statistics, I am quite interested in applying my statistical knowledge to real-life problems. For this year, I have been working in the Gelman Library as a Statistical Consultant. At work, I really enjoy talking to people and learning from my colleagues, especially in the fields that I am not familiar with. In my life, I love traveling and have been to many countries including the UK, Japan and Singapore. Among those countries, Japan is my favorite one because I love its culture, people, landscapes and polite people. I have been learning Japanese by myself for more than 5 years and made many Japanese friends. Hope to have a great time with all you guys in the future!

Social Media Page (please follow us on LinkedIn and Facebook!)
LinkedIn -- https://www.linkedin.com/company/gw-statistics/
faceBook -- https://www.facebook.com/GWU.STAT/

Obituary

We are sad to announce that Professor Emeritus of our department Dr. Nozer Darabsha Singpurwalla passed away on July 22nd.

Nozer Darabsha Singpurwalla, 83, passed away on July 22, 2022 at his home in Washington D.C., surrounded by family. He was born in Hubli, India. As a young man, Nozer immigrated to the United States, where he obtained a M.S. in Engineering from Rutgers University, and a Ph.D. in Engineering from New York University under the direction of John Kao. He met Norah Jackson (who had recently immigrated from England) at a dance at Disneyland, and they married in 1969. Nozer and Norah lived most of their married life in Arlington, Virginia, where they raised their two children, Rachel and Darius.

Nozer was a faculty member at The George Washington University (GWU) in Washington, DC for over 40 years, serving as Distinguished Research Professor both in the Department of Statistics and the Department of Operations Research (later Engineering Management and Systems Engineering), respectively, and Director of GWU's Institute for Reliability and Risk Analysis; he further held a courtesy appointment with the Department of Decision Sciences at GWU. With areas of expertise in diverse fields including reliability theory, risk analysis, Bayesian statistical inference, quality control and statistical aspects of software engineering, he authored/coauthored three books, co-edited six additional references, and published over 200 manuscripts. Nozer was a prolific researcher who obtained prestigious grants and contracts with agencies, including the National Science Foundation (NSF), the National Institute for Standards and Technology (NIST), the Office of Naval Research, the Army Research Office, and the National Aeronautics and Space Administration (NASA), and held various secondary appointments and consultancies with several laboratories, institutes, and companies nationwide. While at GWU, he further served as a Visiting Professor at Carnegie Mellon University, Stanford University, the University of California at Berkeley, Florida State University, the Santa Fe Institute and the University of Oxford (UK). Nozer obtained additional prestigious appointments with other institutions internationally. During the fall of 1991, he was the first C. C. Garvin Visiting Endowed Professor in the

Mathematical Sciences at the Virginia Polytechnic Institute and State University. In 1993, he was awarded a Rockefeller Foundation Grant as a Scholar in Residence at the Bellagio, Italy Center.

Nozer's extensive scholarship and research carried over into his teaching and service activities. He had an impressive track record as a PhD advisor to over 40 students where, in some instances, he oversaw multiple students to graduate in the same year. Nozer's scholarly service to the academy meanwhile included service on a broad array of editorial boards including the *Journal of the American Statistical Association*, *International Statistical Review*, *Operations Research*, *Technometrics*, and *The American Statistician*. He retired from The George Washington University in 2013 becoming an Emeritus Professor of Statistics, and served another eight years as faculty with the City University of Hong Kong. From 2013-2017, he held a joint appointment as Chair Professor in the Department of System Engineering and Engineering Management, and the Department of Management Sciences. He then transitioned to other faculty roles in the School of Data Science from 2017-2021; thereafter he was an Honorary Professor in the Department of Management Sciences at City University of Hong Kong.

Nozer was revered internationally for his scholarship, particularly regarding foundational aspects of reliability, risk analysis, and Bayesian Statistics. His efforts earned him various distinctions as a Fellow of the Institute of Mathematical Statistics (IMS), the American Statistical Association (ASA), and the American Association for the Advancement of Science (AAAS); and as an Elected Member of the International Statistical Institute (ISI). Along with these accolades, he received several additional honors and awards. He was recognized as the 1984 recipient of the U.S. Army's S. S. Wilks Award for Contributions to Statistical Methodologies in Army Research, Development and Testing; the first recipient of The George Washington University's Oscar and Shoshana Trachtenberg Prize for Faculty Scholarship in 1992; and the ASA/NSF/NIST Senior Research Fellow in 1993. In 2011, he was recognized with the Medal of Excellence award from his alma mater, Rutgers University.

Nozer had a way with words and always enjoyed a spirited debate. His colleagues will most remember his sense of humor and his ability to make the complex appear simple. He loved music (Indian, classical, and opera), history and politics, and world travel with his family. He is survived by his wife, Norah (née Jackson); his sister, Khorshed Tantra, and her family; his children, Rachel (Peter) and Darius (Jennifer); and his beloved grandchildren, Veronika and Cyrus.

An Exercise

1. Let $X_1, \ldots, X_n$ be a random sample from a discrete uniform distribution with pmf

$$f_\theta(x) = \frac{1}{\theta}, \quad x = 1, 2, \ldots, \theta,$$

where $\theta \in \mathbb{Z}^+ = \{1, 2, \ldots\}$ is an unknown parameter. Let $\mathbf{X} = (X_1, \ldots, X_n)$ and $T(\mathbf{X}) = \max\{X_1, \ldots, X_n\}$

(a) Prove using the Factorization Theorem that T is a sufficient statistic.

(b) Since T is a sufficient statistic, the conditional distribution of $\mathbf{X}$ given T must be independent of θ, i.e., for any fixed $\mathbf{x} = (x_1, \ldots, x_n)$ and t, with $x_i \in \mathbb{Z}^+, i = 1, \ldots, n$, and $t \in \mathbb{Z}^+$, $P_\theta(X_1 = x_1, \ldots, X_n = x_n | T = t)$, denoted $h_\theta(\mathbf{x}|t)$, must be the same for all $\theta \in \mathbb{Z}^+$. Can you prove this directly? In particular, answer the following two questions.

(i) For $n = 4, x_1 = 5, x_2 = 6, x_3 = 2, x_4 = 8$ and $t = 8$, can you show that $h_\theta(\mathbf{x}|t)$ is the same for $\theta = 100, 12$ and 5?

(ii) For $n = 4, x_1 = 5, x_2 = 8, x_3 = 2, x_4 = 6$ and $t = 6$, can you verify that $h_\theta(\mathbf{x}|t)$ for $\theta = 100, 12, 5$ are equal?

(c) In parts (i) and (ii) of (b), how did (or can) you handle the case of $\theta = 5$?

(d) Read the proof Theorem 6.2.6 (for discrete distributions) in Casella-Berger book. Try to apply the arguments in the proof to establish that $h_\theta(\mathbf{x}|t)$ is the same for all $\theta \in \mathbb{Z}^+$ in the two cases considered above. Does that work? Is the proof correct?

(e) What makes defining sufficiency and proving the Factorization Theorem difficult even for discrete distributions? What approaches can you suggest for overcoming the difficulty?

Full-time Faculty & Their Research Interests

Tatiyana Apanasovich Measurement error models, Spatial statistics, Positive definite kernels, Non/Semiparametric regression, Vector valued random fields.	**Srinivasan Balaji** Diffusion processes, Markov chains, Stochastic differential equations and applications.
Sudip Bose Bayesian statistics, Bayesian robustness, Pitman closeness.	**Joseph L. Gastwirth** Statistics in law and public policy, Robust statistical methods, Grouped data.
Feifang Hu Adaptive design of clinical trials, Bioinformatics, Biostatistics, Bootstrap methods, Statistical issues in personalized medicine, Statistical methods in financial econometrics, Stochastic process.	**Fang Rachel Jin** Deep learning, Natural language processing, Data mining, Machine learning, Social network analysis.
Subrata Kundu Sequential analysis, Density estimation, Software reliability, Hypothesis testing, Nonparametric statistics.	**Yinglei Lai** Bioinformatics, Computational biology, Statistical genetics.
Joshua Landon Bayesian statistics, Stochastic processes, Markov chain, Monte Carlo methods, Decision analysis, Reliability.	**Zhaohai Li** Genetic epidemiology, Statistical methods for meta analysis, Empirical Bayes, Methods for clinical trials, Clinical biostatistics.
Hua Liang Partially linear models, High-dimensional semiparametric modeling, Model averaging and model selection, Longitudinal data analysis, Measurement error models, Nonlinear and nonparametric mixed effect models, HIV/AIDS clinical trial and dynamic modeling.	**Hosam M. Mahmoud** Probabilistic analysis of algorithms, Random discrete structures, Analytic probability.
Reza Modarres Statistical computing, Multivariate analysis, Environmental statistics, Nonparametric statistics.	**Tapan Nayak** Inference, Prediction, Software reliability, Randomized response design.
Qing Pan Survival analysis, Recurrent event data, Observational studies, Costs analysis.	**Huixia Judy Wang** Quantile regression; Extreme value theory and applications; Bioinformatics; Nonparametric (Semiparametric) regression; Inference; Variable selection; Survival analysis; Longitudinal data analysis; Spatial analysis; Measurement error; Missing data
Xiaoke Zhang Functional data analysis, longitudinal data analysis, smoothing, dimension reduction, nonparametric statistics, statistical learning, and neuroimaging.	**John M. Lachin** Biostatistics Epidemiology

Contribute to the Newsletter

We will issue the next Newsletter in October, 2022. If you would like to contribute to the sections `Research Spotlight` or `Reading Recommendations`, or want to join the editorial team for the Newsletter, please contact Jiaqian Yu (jiaqian7@gwu.edu) or Yipeng Wei (yipeng_wei@gwu.edu). Welcome to join us.