

STORies



FALL 2020 **NEWSLETTER**

Department of Statistics and Operations Research



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

STORIES

FALL 2020

CHAIR'S LETTER	3
FACULTY HIGHLIGHTS	4-5
GRADUATE PROGRAM	6
UNDERGRADUATE PROGRAM	7
STORIES.....	8
REFLECTIONS	9
NEW HIRES	10
AWARDEES	11
INCOMING CLASS	12
DONATE	13



Dear Friends,

Welcome to the inaugural annual issue of STORies. STORies aim to share, celebrate and record STOR happenings in the year's past, and to provide outlook for the near future. And what the academic year 2019/2020 it was! The STOR department made advancements in several areas before the emergence of the COVID-19 pandemic and has since been adapting to the current but hopefully temporary environment.

We have been pushing enthusiastically into the Data Science/Analytics domain. This is reflected especially in our changing undergraduate curriculum. For example, an introductory service course on data science was developed and is being taught this academic year for the first time. The department has also been engaged in various campus wide initiatives on data science, some in close collaboration with our School of Information and Library Sciences, and Department of Computer Science. These efforts will continue in the new academic year 2020/2021.

Important changes occurred to the graduate studies in the department. The three previous PhD programs (OR, Statistics and INSTORE) were unified into a single but flexible PhD program. An incoming PhD student will now be given the basics of all the research areas in the department (Applied and Theoretical Statistics, Probability, Stochastic Modeling, and Optimization) before focusing on more specialized topics. We also worked hard to get graduate students more involved and have a greater say in departmental affairs, for example, in running the department colloquium and having more regular interactions with faculty.

In other major developments, the department was involved heavily in hiring, with two tenure track and one fixed term faculty joining the department this new year. Their short bios and pictures are included in these STORies. The department also attracted an excellent and diverse incoming class of PhD students introduced below as well. The COVID-19 pandemic prevented most of our admitted international graduate students from joining the department, so the incoming class consists mostly of US students. Again, the class is the first to follow a revamped graduate curriculum.

Looking ahead at the new academic year 2020/2021, the COVID-19 pandemic will certainly continue creating challenges, with the department operating mostly remotely in the fall and with little certainty yet about the spring. This period, however, also presents opportunities for the department to pause and perhaps look more inwards for further change and improvement. Besides continuing the initiatives outlined above, other departmental priorities will be on engaging better with donors, alumni and industry partners, working on activities related to social justice (mostly led by graduate students), and expanding our online presence.

Do continue supporting the department in any way you can!
Sincerely,



VLADAS PIPIRAS
CHAIR

FACULTY HIGHLIGHTS

THE DEPARTMENT IS PROUDLY CELEBRATING FACULTY ACHIEVEMENTS

The **Institute of Mathematical Statistics** selected their cohort of new **Fellows** for 2020, and Professors Bhamidi and Hannig will be on the list of honorees. Traditionally, fellows would be presented at the Presidential Address and awards session during the Joint Statistical Meetings. But the 2020 JSM moved to an online format, and the IMS Annual Meeting wasn't held this year. Instead, each 2020 Fellow was highlighted in a recent IMS Bulletin as well as on IMS social media platforms.



SHANKAR BHAMIDI

PROFESSOR

“For his many outstanding contributions to a wide variety of topics in network modeling and its applications.”



JAN HANNIG

PROFESSOR

“For broad and original contributions to probability and mathematical statistics, most particularly innovative development of the theory of generalized fiducial inference, the application of this theory to a wide range of important application areas, and the development of computational techniques for its implementation.”

ANDREW NOBEL**PROFESSOR**

Was appointed as the Robert Paul Ziff Distinguished Professor of Statistics and Operations Research, effective July 1, 2020. Professor Nobel's appointment recognizes his research achievements and collaborative activities. We hope that it will further highlight the key role played by numerous STOR faculty in data science and interdisciplinary research at UNC.

**STEVE MARRON****PROFESSOR**

The North Carolina chapter of the American Statistical Association presented a Senior Statistician award to Dr. Steve Marron at the annual fall dinner on December 6, 2019. He and Alyson Wilson of NCSU were recognized for their "outstanding contributions to the theory and practice of statistics".

**NILAY ARGON****PROFESSOR**

A recent article in Scientific American on triaging intensive care patients included an interview with Dr. Nilay Argon, whose joint work "Allocation of intensive care unit beds in periods of high demand" with Dr. Serhan Ziya and Dr. Huiyin Ouyang (2016 graduate) was published by INFORMS last month.





GRADUATE PROGRAM

SHANKAR BHAMIDI

*GRADUATE PROGRAM
DIRECTOR*



For me, the two themes of the last few years for the graduate program have been change and gratitude. The MS and PhD program have been reorganized, with the previous three programs of Statistics, OR and INSTOR unified into one common program with the goal of providing a rigorous but flexible interdisciplinary program within which students can benefit from the expertise of the Department's core faculty, whilst interacting with domain scientists in other fields. Faculty have redesigned existing graduate courses with comprehensive input from existing students and alumni. A host of new courses at the graduate level are in the works emphasizing computation, including probability for data science and graduate level statistical computing. Before the switch to remote learning a host of events were organized between faculty and the students including department round table, tea times, and career

advice sessions. Our graduates continue to have outstanding careers in academic positions and the industry. Despite travel restrictions, current students have represented the department in several prestigious conferences including the Bernoulli world congress, Joint Statistical Meetings and SIAM annual meetings. Exciting new initiatives are now in the pipeline including developing UNC's first Data Science Lab for faculty and graduate students to partner with teams of undergraduate students to work on high impact problems and mentoring programs for high school students.

I wanted to express my heartfelt gratitude to everyone who makes up the graduate program including:

- the graduate students. Your energy, spirit and pursuit of excellence, despite the tremendous strain in managing academic and professional commitments in the

midst of a pandemic (and for international students, constant stress regarding immigration), is at the core of our flourishing program.

- the faculty. Thank you for mentoring students, developing new courses, and even coming in on the weekend to arrange your offices for students to take exams to maintain social distancing! Many thanks to Profs. Argon and Lu who had the Herculean task of admissions this year and brought in a phenomenal collection of new students.

- to the staff who have been constant pillars in navigating this new world.

- to the alumni who have been super supportive every time I have reached out.

Going forward, my plan is to carefully think about the gaps that this pandemic exposes. Despite the current turbulence, I am excited to see what we can accomplish over the next few years.

UNDERGRADUATE PROGRAM



SERHAN ZIYA

UNDERGRADUATE
PROGRAM DIRECTOR



It is a pleasure for me to give updates on our program. Our Statistics and Analytics (STAN) program, both as a major and a minor, has continued to be one of the most popular on campus with a student body size that has been consistently growing. Back in 2016, we had 84 majors and 44 minors, who graduated from our program. This year, we had 127 major and 84 minor graduates so far, with more to be added in December. As of August 2020, there are 650 UNC students who declared STAN as their major and 404 as their minor. Despite the difficulties that the pandemic presents we see no reason for our program to lose its appeal thanks to the industry's interest in hiring graduates trained in data science and analytics.

The pandemic prevented us from holding a graduation ceremony in May but we were delighted to give our annual STAN and Mann awards

to four of our graduation seniors. Rachel Grace Augustine and Qi Su were co-recipients of this year's STAN award, which is given to graduating STAN majors who have truly excelled in their course studies and/or stood out among their peers by the potential they have shown through their achievements in STAN-related activities outside the classroom. Cory Alexander Carr and Solomon Christian Collins were co-recipients of this year's Mann award, which is given to graduating STAN majors who have shown great success and future potential in actuarial science.

Finding jobs have no doubt been more challenging this year at least for some of our graduating seniors but according to our survey of post-graduation plans, our graduates have continued to be hired by some of the top companies in a range of industries including tech, finance, and insurance. As in the

past years, some of our graduates have also chosen to continue their studies at the graduate level having accepted by some of the top programs in Statistics and Operations Research including those at Stanford, Cornell, and Columbia.

We have continued to enrich our STAN curriculum by adding five new courses to our permanent catalog: STOR 120: Foundations of Data Science, STOR 475: Health Care Risk Analytics, STOR 520: Statistical Computing for Data Science, STOR 535: Probability for Data Science, and STOR 538: Sports Analytics. Plans are also under way even for more new offerings within the next couple of years as we continue to innovate and respond to changing and rapidly growing demands of data science skill set in private and public sectors as well as academia. Stay tuned!



Yuzixuan Zhu
Ph.D. STUDENT

During the five years as a Ph.D. student in Optimization at UNC-Chapel Hill, I had a lot of support from people: advisors, teachers, and peer-students. The one honorable mention, though, is how the local Chinese food helped curtail my homesickness.

Several nice restaurants are within walking distance to Hanes Hall: Shanghai Dumpling, Yaya Tea, Ms Mong, and Cha House are the best options for a quick lunch. For dinner, I would get casserole pots from Jade Palace, “Peking duck three way” from Hunan Chinese Restaurant, or spicy Sichuan cuisine from Gourmet Kingdom. Meet Fresh and Quickly are my favorite places to go when I crave a cup of cold refreshing bubble tea.

On the weekend, there is nothing compared to meeting up with my colleagues at a Chinese restaurant in Research Triangle

Area. We gather for hotpot at Good Harvest and So Hot, or for dim sum at Dimsum Asian Bistro and Hong Kong Restaurant. I will not forget the crawfish at Dae Jang Kum and roast fish at Chengdu 7. With tight budget, Li Ming’s Global Market provides groceries I need to cook Chinese food at home.

During tough times, Chinese food boosts my morale; during good times, it rewards my progress. I am lucky to have spent five years of graduate studies in the school with accessible and delicious Chinese food.

STORies



Rachel Agustine
UNDERGRAD STUDENT

I came to UNC pursuing a Statistics & Analytics major because I loved Calculus. I promise that’s not a joke! I still love Calculus, but I graduated with a much more holistic idea of what it means to love Statistics for what

it can teach me about the world. It was important for me to have an education that was largely based on application. The STOR department let me explore life by viewing it through the lens of math and computing. I remember one of the first days in Cunningham’s class, for instance, when he pulled up the data on the UNC/Dook rivalry match to see if we could predict the outcome of the upcoming game. We were able to make graphs to explain the match, and discuss how we could use it in everyday life. I am moving to DC in August to start work as a Data Science

Fellow at a laboratory that works with the Department of Defense. Although this is a bit more serious than a basketball game, I will bring all of my STOR lessons with me. I will also bring my experiences with my female professor role models, Dr. Aragon and Dr. Olvera-Cravioto, who have shown me what it means to be a woman in STEM. I am thankful to all my professors and for my four years in Hanes, and I hope I can come visit again soon. Go Heels!



Shayna Hill
BUSINESS OFFICER

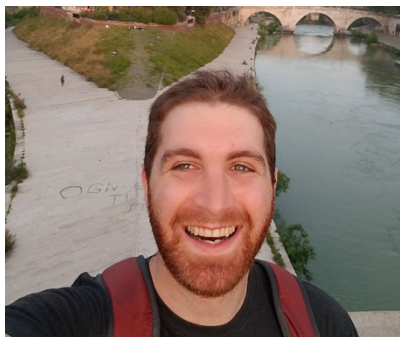
A Department with Heart

The last few months presented us with unprecedented challenges. I suppose years from now we will all look back and ask “Where were you when COVID

hit? Were you surrounded by loving people who supported you and took care of you? Did folks offer to ease your burden? Did you feel safe there?” I can honestly say yes to all of these questions. The faculty and staff rose to the challenge of moving to remote operations while managing to stay connected to one another and to our students. Faculty freely shared lessons learned as they struggled to keep classes going during the transition. After all, for us, it was and always will be about education. Staff took turns holding

each other up as administrative processes changed at the speed of a keyboard click. It has been a challenging time for us all but this place has heart. The kind of heart that keeps families together. The kind of heart that builds communities. The kind of heart that reminds me I am in the right place at the right time even though it is hard. I look forward to being a part of a team that keeps that heart beating whatever may come. I look forward to 2021 with these amazing colleagues at my side.

REFLECTions



Benjamin Leinwand
GRADUATE STUDENT LIASON

Over the past year, we have worked to foster a more hospitable environment for graduate students in STOR. On the academic side, in addition to restructuring the PhD program, professors tasked with revamping first-year courses met with students and incorporated their feedback and recommendations.

To improve departmental unity, a different graduate student speaks to professors before each faculty meeting. We held a Faculty Roundtable for students to get concentrated life and career advice from 15 professors and hear their perspectives about research, success, and the broader fields of Statistics and Operations Research. After that, we started hosting monthly “tea times” where students and faculty mingle and discuss a topic over light snacks. We have organized joint seminars, hikes, and happy hours with the Biostatistics Department. We developed a website with information and resources for prospective and current students.

If last year’s focus was improving conditions within STOR, this year, students are trying to find ways to give back to our communities. This includes bringing education and mentorship to underserved groups, both at the K-12 level and for UNC undergraduates. We are also revising basic processes we have in place, like creating improved standard syllabuses, emphasizing representation, and finding better ways to support the diversity of ways our undergraduate majors want to apply the skills they learn here. When we all finally get to return to Hanes, we expect to find our department better than we left it.

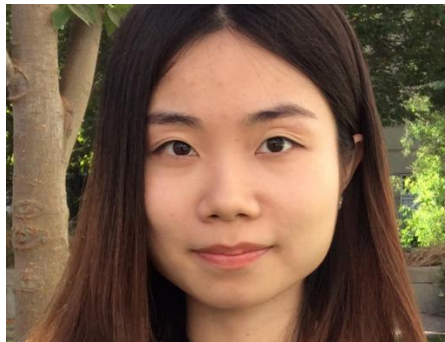


The department is very happy to WELCOME its new members!



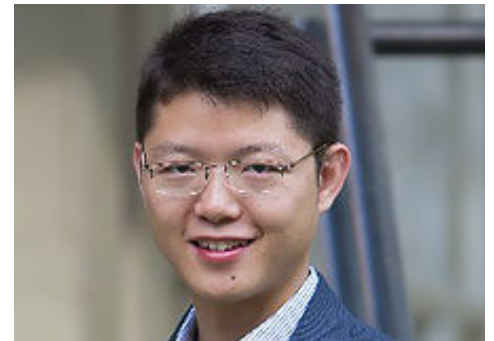
WILLIAM LASSITER
TEACHING ASSISTANT PROFESSOR

Will Lassiter just received his Ph.D. in Operations Research from the Georgia Institute of Technology. His favorite aspect of OR is the challenge of designing and implementing mathematical models to solve everyday problems. When he isn't doing math, he enjoys playing tennis, hiking, crossword puzzles, and following college sports.



YAO LI
ASSISTANT PROFESSOR

Yao Li just received her Ph.D. in statistics from UC Davis. Her research interests lie in developing new machine learning algorithms that are efficient and scalable on large datasets. Currently, she's working on improving the robustness of deep neural networks against the adversarial examples. When she's not doing research, she enjoys board games, snowboarding and reading.



ZHENGWU ZHANG
ASSISTANT PROFESSOR

Dr. Zhang obtained his Ph.D. in Statistics from Florida State University in 2015. He was a postdoctoral fellow at SAMSI before joining the Biostatistics faculty at the University of Rochester. His research interests lie in developing effective statistical and machine learning methods for high-dimensional and complex "objects" such as images, surfaces, and networks.

AWARDees



Weibin Mo

Ph.D. STUDENT

Weibin Mo was selected as a winner of the *Statistical Learning and Data Science Student Paper Award* competition. In addition to a cash prize, he will have the opportunity to present his paper, “Learning Optimal Distributionally Robust

Individualized Treatment Rules”, at this year’s Joint Statistical Meeting in Philadelphia. This paper was a joint work with his advisor, Dr. Yufeng Liu, and Dr. Zhengling Qi (Ph.D., 2019) of George Washington University.

The department is very proud of its Ph.D. students for their excellent work!

STOR Outstanding Achievement Award

Daiqi Gao
Sumit Kumar Kar
Xinyuan Niu
Jose Angel Sanchez Gomez
Hui Shen

STOR Teaching Award

Duyeol Lee
Jack Prothero

The department congratulates its undergraduate students for their great achievements!

Statistics and Analytics Award

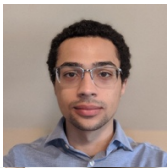
Rachel Augustine
Qi Su

W. Robert Mann Award

Corwin Carr
Solomon Collins



INCOMING CLASS



Adrian Allen
Penn State

comics, guitar, gaming



Andy Ackerman
Clemson University

rock climbing, mountains



Bongsoo Yi
Seoul National University

outdoor activities



Brian White
Wake Forest University

classical piano, tennis, climbing



Emma Mitchell
Texas Tech University

guinea pigs, yoga, coffee



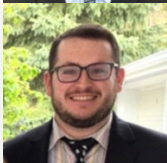
Feiya Suo
UNC Chapel Hill

cats, cooking Asian food



Hank Flury
University of Washington

run, bike, longboard, videogames



Ian Ferer
Rensselaer Polytechnic Institute

cooking, puzzles, watching sports



Ji Min Choi
Kyungpook National University

baking, yoga, video games, music



Joe Lavond
California Polytechnic State University

hiking, coffee



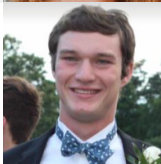
Ke (Christina) Cai
Macalester College

piano, cooking, brewing Kombucha



Madison Lindsay
University of Richmond

board games, backpacking



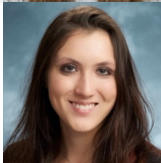
Matt Johnson
UNC Chapel Hill

fly fishing, basketball, music, watching sports



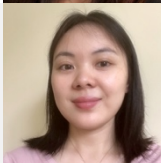
Morgan Smith
East Carolina University

gardening



Shaleni Kovach
NC State University

playing soccer, reading



Yali Li
Sun-Yat Sun university

dancing, hiking, playing ping-pong

SUPPORT STOR

Private giving is now more critical than ever. We welcome your gifts to STOR, either to our unrestricted fund that provides the Chair the flexibility to apply funding where it is needed most at any given time, or to support our existing fund-raising priorities.

<https://stat-or.unc.edu/support>

For questions about creating scholarships and professorships, making stock or estate gifts, donating to specific programs, please contact:

Cassie Diltz
Director of Development
The Arts and Sciences Foundation
919-843-0345
cassie.diltz@unc.edu

To make a gift via check, please make check payable to “Arts & Sciences Foundation, Inc.” with “Statistics and Operations Research” on the memo line and mail to:

Cassie Diltz
Director of Development
The Arts and Sciences Foundation
The University of North Carolina at Chapel Hill
523 East Franklin St
Chapel Hill, NC 27514

The Harold Hotelling Memorial Fund.

This fund provides support for the instructional and research efforts of the department, including support for the annual series of guest lectures for faculty and students known as The Hotelling Lectures.



Hoeffding Scholarship Fund for Statistics.

This fund support scholarship awards to graduate students in Statistics. Awards are made based on demonstrated academic merit.



Nicholson Scholarship Fund for Operations Research.

This fund support scholarship awards to graduate students in Operations Research. Awards are made based on demonstrated academic merit.



Stamatis Cambanis Memorial Fund.

This fund supports graduate education and research in Statistics.

