



A MESSAGE FROM THE DEPARTMENT HEAD



Each Fall and Spring, I have the pleasure of sharing with you some exciting highlights about our Department. This newsletter covers the period January 1, 2022, to August 31, 2022.

A big sigh of relief for all of us that Covid seems to be letting up, finally. It is so refreshing to see in-person events on campus after a long time. Come and attend one of our Wednesday afternoon colloquia with packed audience, and you will know what I mean.

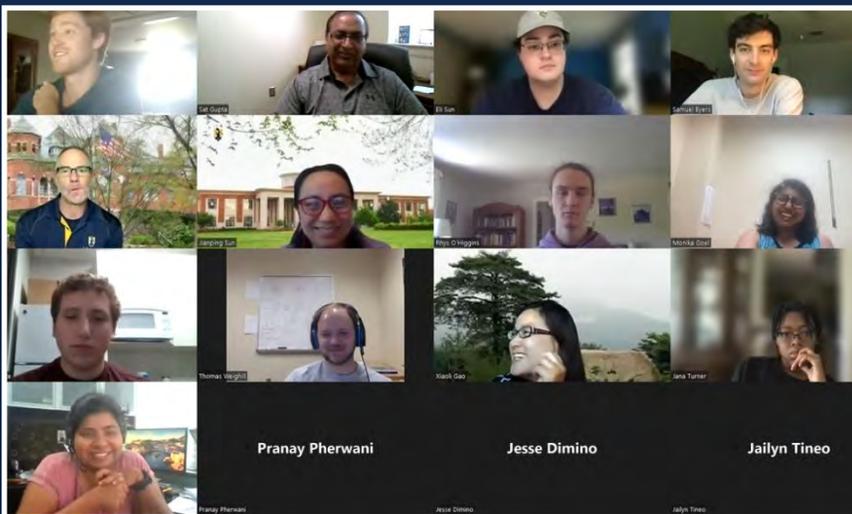
This six-month period has been a remarkable one for us in terms of success with external grants. Our faculty got many multi-year external grants. These are described a bit further down in the newsletter. We were extremely pleased to welcome 4 new Full Professors (Xiaoli Gao, Sebastian Pauli, Cliff Smyth and Dan Yasaki). All four of these colleagues were promoted to Full Professor after compiling a very distinguished record as Associate Professor.

We were very sad to say goodbye to our longtime staff leader Carri Richter who decided to go back to school. Carri is being replaced by Leslie Justice who comes to us after being in a similar position at NC A&T State university for 15 years. We were also sad to see a highly distinguished faculty colleague John Stufken leave. for George Mason University.

Haimeng Zhang, our Graduate Programs Director decided to step down after completing a 3-year term. We thank Haimeng for his tremendous work as GPD. He is being replaced by Dr. Jonathan Rowell. We graduated 2 more PhD students (Sarangan Balasubramaniam and James Rudzinski) this year. We also welcomed 8 new PhD students. Our total PhD student count now stands at 32.

I invite you to browse this newsletter to learn more about the various exciting things that have happened in the Department since January 1, 2022.

Sincerely,
Sat Gupta
Fellow of the American Statistical Association



From left to right, top to bottom: Samuel Griffen, Sat Gupta, Eli Sun, Samuel Byers, Scott Richter, Jianping Sun, Rhys O'Higgins, Monika Goel, William McHance, Thomas Weighill, Xiaoli Gao, Jana Turner, and Rakhi Singh

2022 REU in Computational Statistics

Keeping up with the long tradition of NSF-funded REU programs in the Department, we hosted a NSF REU program in Complex Data Analysis using Statistical and Machine Learning Tools (Sat Gupta (PI) and Xiaoli Gao (Co-PI)) that ran from May 26 to July 31 in the Summer of 2020, from May 24 to July 30 in 2021, and from May 23 to July 29 in 2022. In addition to Sat Gupta (PI) and Xiaoli Gao (Co-PI), there were 5 other faculty (Scott Richter, John Stufken, Jianping Sun, and Thomas Weighill) who served as Senior Personnel. Rakhi Singh (a postdoc in the Informatics and Analytics program) also served as a mentor. Each summer, the program normally trains nine nationally recruited undergraduate students who work on a variety of research projects. This summer, we were able to fund one additional student. Students in the 2022 program came from UNC Asheville, Florida State University, Duke University, University of California Santa Barbara, University of Rochester, NC A&T State University, Rhodes College, Macalester College, College of the Holy Cross, and the CUNY College of Staten Island.

FACULTY SPOTLIGHT



Dr. Clifford Smyth joined UNCG as an Assistant Professor in 2008 and then rose to the ranks of Associate Professor in 2014 and Professor in 2022. He wrote his Ph.D. thesis at Rutgers University where his advisor was Michael Saks.

After graduating in 2001, he went on to conduct postdoctoral work at The Institute for Advanced Study, 2001–2002, Carnegie Mellon University, 2002–2005, and MIT, 2005–2008, before coming to UNCG. His research programs have won grant support: once from the National Security Agency, 2013–2015, \$55,786, and three times from the Simons Foundation, 2012–2017, \$35,000 (an award that had to be declined to accept the NSA grant), 2015–2020, \$35,000 and most recently 2022–2027, \$42,000. He is pleased that his work has often merited acceptance in top journals such as the Proceedings of the AMS and the Journals of Combinatorial Theory, Series A and B, and the two major theoretical computer science proceedings, FOCS and STOC.

Cliff has changed his research interests several times. He initially worked on questions in computational complexity and discrete geometry. He then worked on problems in combinatorial probability at Carnegie Mellon. While at MIT and continuing to UNCG, he transitioned to a question

in enumerative combinatorics and algebraic combinatorics. While doing this, he wrote papers on combinatorial games, topological data analysis, and machine learning. Currently, he is considering problems surrounding certified solutions to ODE, the Skolem problem, and topological graph indices with his collaborators and with his Ph.D. students James Rudzinski (2021) and Matt Farmer (current).

Cliff cares deeply about education. He has taught courses at all levels at UNCG, from the 100 level to the graduate level. As course coordinator (2016–2022), he implemented many approaches to reduce the DFW rates in the college algebra MAT 115 sequence. The one he liked best was the Self-Regulated Learning approach that he put his own spin on. This was a program to systematically direct the students' focus toward critical self-analysis and improvement of the methods they were employing to succeed. He was a Spring 2020 URSCO Faculty Fellow, leading 13 undergraduates through a course-based undergraduate research experience in linear programming. He has advised dozens of undergraduate research projects all throughout his career.

In his personal life, Cliff likes spending time with his wife and son: hiking, walking the dog, going to the movies, traveling, going to museums, bowling, amusement parks, playing board games, watching Netflix shows, vacations, and helping with homework.

STUDENT NEWS

Newly Recruited Graduate Students

In spite of the budgetary constraints, we were successful in recruiting a strong group of new graduate students. We recruited 8 new PhD students and 3 new master's students. Our total PhD enrollment now stands at 32.

GRADUATED STUDENTS



In addition to the five (5) PhD students we graduated in 2020 and 3 more in 2021, we graduated 2 more students in 2022; Sarangan Balasubramaniam, Advisor Haimeng Zhang (left), and James Rudzinski, Advisor Cliff Smyth (right). Sarangan is now a Lecturer at the University of Georgia and James is a Lecturer with us.

VIBRANT COLLOQUIUM SERIES IN THE DEPARTMENT

FACULTY SPOTLIGHT



Matthew Jester serves as an Academic Professional in the Department. He has a long-standing history with the Department. He received his B.S. in Mathematics with concentration in Statistics in 2011. As an undergraduate he participated in the Math-Bio REU program offered by the Department for two summers. He presented his research work from this experience at various conference throughout the state of North Carolina and even at an international conference in Patna, India, (the 19th International Conference on Interdisciplinary Mathematical and Statistical Techniques).

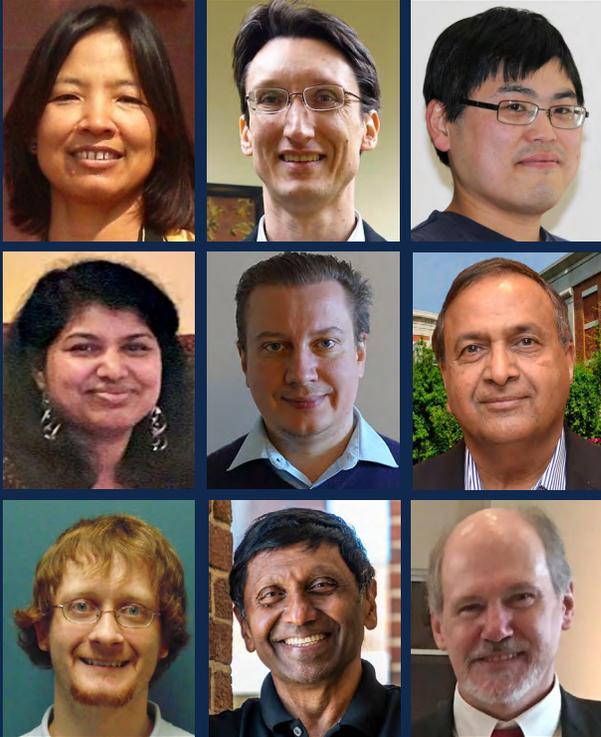
Following graduation, he taught for a few years at Forsyth Technical Community College and North Forsyth High School. After teaching for five years, he decided to come back to school and received his M.A. in Mathematics with us in 2018 with a research focus in statistics, particularly sampling techniques, advised by Dr. Sat Gupta. A few months after graduation, he joined the faculty as a Lecturer in the Mathematics & Statistics Department. Since joining the Department he has been pursuing a PhD in Computational Mathematics. His research, which focuses on looking at the topology in firm, is currently funded



Although Covid continued to create disruptions in holding in-person events on campus, we were able to run a very vibrant virtual lectures series. During the Spring 2022 semester, we featured 37 colloquium and seminar talks. These included 11 colloquium talks, 2 Helen Barton Lectures in Computational Mathematics, 11 seminars in Pure Mathematics, 8 seminars in Applied mathematics and 5 seminars in Statistics.

by the Army Research Office with Dr. Sarah Day at William and Mary as the PI, and Dr. Xiaoli Gao and Dr. Kaitlin Keegan at University of Nevada at Reno as the Co-PIs. He has also co-mentored REU students each summer since 2020. Some of this REU work has been published IEEE Access and presented at 4th International Conference on Econometrics and Statistics at HKUST in Hong Kong. Rest of the work is currently in preparation.

He has been an integral part of teaching staff in the Department. For example, during the transition to online learning at the start of the Covid-19 pandemic, he provided training and technical assistance to the Department faculty. In addition, he and Dr. Dan Yasaki have helped create and revise gateway courses such as MAT 118 – Algebra with Business Applications and MAT 120 – Calculus with Business Applications for the Bryan School of Business. As the Director of the Math Help Center & Math Emporium Lab, his main goal this year is to develop and implement an International Tutor Training Program Certification (ITTPC) through College Reading and Learning Association, CRLA. This certification is used at some of the other support centers that are on campus here at UNCG, such as the Academic Achievement Center (AAC) and TriO and will improve the quality of tutoring.



NEW EXTERNAL GRANTS

The Department has had tremendous success with external grants over the past three years. In 2019–20, the Department received 4 major NSF awards (Talia Fernos (\$283,000, \$46,000), Sat Gupta (\$324,000), and R. Shivaji (\$239,000)) and one Army Research Office grant (Yu-Min Chung, \$158,000). The faculty received a record number of grants 2020–21. Xiaoli Gao, Dan Yasaki and Yi Zhang received 5-year Simons Foundation grants (2021–26, \$42,000 each), Tom Lewis received an NSF grant as PI (2021–24, \$119,972) and another NSF grant as Co-PI (2021–24, \$114,944), and Yi Zhang received an NSF grant as PI (2021–24, \$114,944), and another NSF grant as PI (2021–22, \$12,500). Scott Richter was Co-PI on a NICHD \$1,383,566, 3-year grant with Maryanne Perrin from the Nutrition Department serving as the PI.

The grant-rush continued in 2021-22 also. Maya Chhetri and Cliff Smyth received Simons Foundation grants (2022–27, \$42,000 each, Dan Yasaki (PI) and Monika Goel (Co-PI) received NSF grant (\$93,470, Igor Erovenko is Co-PI on a 3-year NSF grant (\$220,000), Sat Gupta is Co-PI on a 5-year 3.4 million NSF grant, Tom Lewis is Co-PI on a \$33,000 VI NASA EPSCoR grant, Shivaji received a one-year NSF grant (\$80,000), and John Stufken received a 3-year \$150,000 NSF grant. Congratulations to all of the previous awardees and the new awardees!



From left to right: Carri Richter, John Stufken, Sheela Misra, Leslie Justice, and Sadia Khalil

FACULTY AND STAFF CHANGES

We were very sad to see our longtime staff leader Carri Richter leave to go back to school. We were also sad to see a highly distinguished faculty colleague John Stufken move to George Mason University. Sheela Misra moved back to Lucknow University after completing a one-year term as a Visiting professor of Statistics.

We are pleased to welcome Leslie Justice as a replacement for Carri as our staff leader. Leslie Justice comes to us after being in a similar position at NC A&T State university for 15 years. Sadia Khalil joins us as a Visiting Assistant Professor of Statistics. Sadia comes to us from the Lahore College for Women University in Pakistan.



UNC GREENSBORO

Department of
Mathematics & Statistics

[DONATE TO MATHSTATS](#)

mathstats.uncg.edu | mathstats@uncg.edu