STATISTICALLY SPEAKING

Official Newsletter of the UC Davis Department of Statistics

LETTER FROM THE CHAIR

By Dr. Alexander Aue

The start of the new Academic Year is a good time to look back on the past year and to look ahead for things to come. The past twelve months have witnessed continued robust growth at all levels. Faculty and students alike have accomplished major milestones, giving testament to the high standing our department enjoys within the statistics community and beyond, giving us reasons to be optimistic about the future.

To recall some of the important feats, Debashis Paul was named a 2019 Fellow of the Institute of Mathematical Statistics for his renowned contributions to non-parametric methods, high-dimensional multivariate analysis and random matrix theory. Jane-Ling Wang was selected as Co-Editor for the Journal of the American Statistical Association, one of the flagship statistics journals, and will provide major service to the profession in this function. Hao Chen and Xiaodong Li were awarded prestigious CAREER grants from the National Science Foundation, garnering two of three CAREER awards given to junior faculty in the College of Letters & Science this year. Ethan Anderes received the L&S Distinguished Teaching Award, a fine recognition of his efforts in the classroom. I am also happy to report that Bala Rajaratnam was promoted to Full Professor and Hao Chen to Associate Professor with tenure.

Thomas Lee and Duncan Temple Lang have taken on administrative responsibilities on campus. Thomas will serve in the important role of Associate Dean of the Faculty for the Mathematical and Physical Sciences in the College of Letters & Science. Duncan has started a term as Associate Dean of Graduate Studies.

Eleven PhD students graduated in Statistics and three more in Biostatistics. More than half are starting academic careers in tenure-track positions or as postdocs, joining departments at Columbia, Berkeley, Iowa State, UC Davis, Fred Hutchison, KAUST, Auburn and Sacramento State. This year, we welcome our biggest ever class of 18 incoming PhD students in Statistics and six in Biostatistics.

We graduated 53 MS students in 2018-19. Many of those graduating will go on to pursue a PhD either in Davis or elsewhere. We are in the process of phasing out the Integrated Degree Program. To further modernize the curriculum, we have added a Data Science track to the MS in Statistics degree. In addition, two new courses, STA 220 and 221 have been approved as MS counterparts to 141B-C and will be on the books for the first time this year.

The department conferred a record 197 undergraduate degrees in Statistics this past year. The number of Statistics majors continues to grow and we served more than 620 students, an all-time high, in the various tracks at the end of the last Academic Year. Our newest track in machine learning should be on the books for the Fall 2020-21. The machine learning track is centered around two new classes, STA 142A-B, that will be taught for the first time this year. We expect our program to be in continued demand in the future.

Managing this tremendous growth would not be possible without a dedicated group of faculty, lecturers and staff. As usual, there were some comings and goings in the department over the summer. At the lecturer level, we had to say a final goodbye to Susan Alber and a temporary goodbye to Erin Melcon, who is expecting her first baby. At staff level, Cristeta Rillera has taken on an internship in the Bay Area required for her MS degree, and Neil Willlits, who has expertly executed his job as StatLab Statistician for many years, will get to enjoy his well deserved retirement. We wish all of them the very best in the next chapter of their lives. On the other hand, we are welcoming a new Graduate Coordinator, a new StatLab Statistician and three Visiting Assistant Professors to the fold. If you haven't already done so, please make sure to say hi to Sarah Driver, who joined us from the Department of Mathematics to take over from Cristeta, Mohammad Sahtout, who joined us from the Abu Dhabi Agriculture and Food Safety Authority to succeed Neil, as well as to Vaidotas Characiejus, Matteo Farne and Randy Lai, who are joining from Brussels, Bologna and Maine to help us deliver the curriculum. While we did not have a faculty hire last year, we have currently active searches for two new tenure-track Assistant Professors and hope that we can attract further reinforcements to the department.

In all, it is fair to say that Statistics continues to be a great profession to be in and this newsletter should provide ample evidence to further support this claim. I hope you will enjoy this new edition of Statistically Speaking!

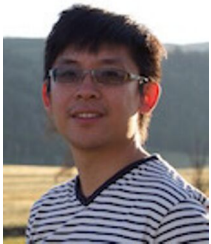# DEPARTMENT ANNOUNCEMENTS

Duncan Temple Lang was named the new Associate Dean of Graduate Programs in the Office of Graduate Studies. He served as the Interim Associate Dean in 2018-19, and will now serve through June 2022.

Thomas Lee was named the College of Letters & Science's Associate Dean of Faculty in Mathematical and Physical Sciences.

Changes to Teaching Staff

Randy Lai will be rejoining us as a Visiting Assistant Professor from University of Maine. He got his PhD in Statistics from UC Davis in 2015, and was previously a student at Chinese University Hong Kong.

Vaidotas Characiejus will be joining us from Université Libre de Bruxelles (Belgium) where he is a Postdoctoral Scholar. He earned his PhD in Mathematics from University of Vilnius in Lithuania.

Matteo Farnè joins us from his alma mater, the University of Bologna in Italy where he is an adjunct professor. He got his PhD in Statistical Sciences in 2016.

Erin Melcon has been a lecturer with us since 2014. Prior to that, she was a PhD student in our department, studying with Jiming Jiang. She is taking some time off to be with her new baby.

Susan Alber was a lecturer with us for 4 years. She recently started a new position as a Senior Statistician with the UCD Public Health Sciences department.

Staffing Changes

Daniel Chang joined us from Contracts & Grants Accounting (Central Accounting) in September 2018. He is our Contracts & Grants Analyst. Welcome, Daniel!

Neil Willits, our Staff Statistician, retired this summer. He had been with the department for over 30 years. We hope he enjoys his well-deserved retirement!

Cristeta Rillera will be leaving her role as the Graduate Program Coordinator finish up her master's degree in counseling. We'll miss her and wish her all the best!

Sarah Driver joined us recently as our new Graduate Program Coordinator. She comes to us after 6 years in the Mathematics department, just below us in MSB. Welcome, Sarah!

Mohammad Sahtout joins us as our new Staff Statistician from the Abu Dhabi Agriculture and Food Safety Authority. Welcome, Mohammad!
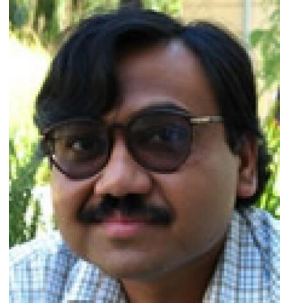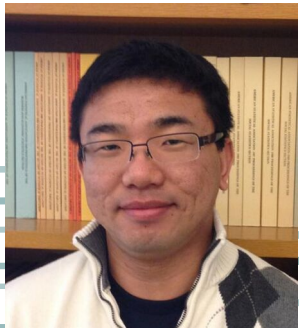
FACULTY SPOTLIGHTS

Hao Chen was awarded the prestigious NSF Career award in 2019. Her award is titled "New Change-Point Problems in Analyzing High-Dimensional and Non-Euclidean Data".

Debashis Paul was honored as one of the 2019 Fellows of the Institutional Mathematical Statistics (IMS), for his contributions to non-parametric methods, high-dimensional multivariate analysis and random matrix theory.

Jane-Ling Wang received the 2018 Distinguished Achievement Award from the International Chinese Statistical Association ICSA) for her significant contributions to statistical theory and methods in survival analysis, functional data analysis, joint modeling of longitudinal and survival data, nonparametric maximum likelihood, smoothing and dimension reduction.

Ethan Anderes received the College of Letters and Science Award for Distinguished Teaching for the 2018 - 19 academic year.
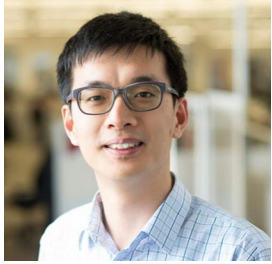
Xiadong Li was also awarded the prestigious NSF Career award in 2019. His award is titled "Statistical Analysis of Nonconvex Optimization in Unsupervised Learning".

Congratulations, all!

WHAT DO OUR ALUMNI SAY?

**Minjie Fan
PhD, 2017**

I obtained my Ph.D. degree from the Department of Statistics in 2017 under the supervision of Thomas Lee and Debashis Paul. After graduation, I worked as a Data Scientist in a research team at Google called Google Accelerated Science for almost two years. The team's mission is to produce breakthroughs in natural sciences by applying Google's technologies. In some sense, it was a continuation of my Ph.D. research work, both of which involve the application of Statistics to natural sciences; my Ph.D. work is in the area of geophysical and environmental sciences, while the team's work is in the area of biological and medical sciences. The wide span of my research work highlights one of my favorite sayings from John Tukey: "The best thing about being a statistician is that you get to play in everyone's backyard." This is very true since I have found Statistics has played such an important role in any of the scientific disciplines. In my work, this includes (i) carefully designing training and testing data sets, and evaluation metrics for machine learning algorithms; and (ii) excluding confounding factors caused by biological experimental artifacts, such as batch effects, which can lead to false scientific discoveries. Without the careful and rigorous analyses conducted by a statistician, results generated from a machine learning algorithm can be unreliable and problematic.
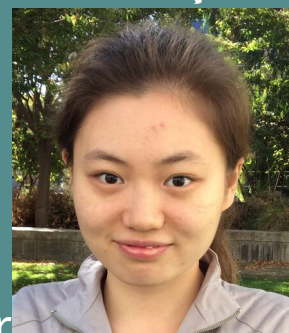
I consider myself very lucky to spend the memorable five years in the Department of Statistics. The course study during the first two years equipped me with a solid foundation of both theoretical and computational statistics. The course series 231, 232 and 223, 224 are those I think the most helpful. The course study has helped me pick up things quickly when I just started working in a new area. During the following three years of research work, I learned how to conduct rigorous statistical research under the guidance of my advisors. I realized that doing research is very different from taking a course: taking a course is learning knowledge that is already known, but doing research is exploring novel ideas no one knows it would ever work, even for my advisors who are way more knowledgable than me. I appreciate the chance of having the research training that makes me more independent, persistent and self-motivated.

GRADUATE STUDENT AWARDS

Paromita Dubey won 2 "Best Student Paper Awards: International Indian Statistical Association, 2018 & Section of Nonparametric Statistics of the American Statistical Association, 2018.

Yaqing Chen received the Summer Graduate Student Researcher Award for Summer 2019. She did research with Professor Hans-Georg Müller.

FACULTY RESEARCH SPOTLIGHT

**Krishna Balasubramanian,
Assistant Professor**

My research interests are at the intersection of statistical inference and computation. Most recently, I have been working on the following three topics:

(i) non-asymptotically quantifying the uncertainty of stochastic optimization algorithms,

(ii) developing a class of second-generation zeroth-order optimization algorithms for problems arising in statistics and machine learning, and

(iii) computationally and probabilistically understanding the behavior of random tensors arising in various statistical applications.

**Ethan Anderes,
Associate Professor**

The general focus of my research is on inference/modeling problems associated with stochastic processes and random fields defined on d-dimensional space, spheres and linear networks.

Recent applications have been focused on statistical problems in Cosmology; in particular on the problem of developing joint Bayesian inference for gravitational lensing and primordial gravitational waves detection in the cosmic microwave background. My theoretical work has been focused on random field non-stationarity, non-Gaussianity and positive definite kernels defined on non-Euclidean spaces. A recent example is the development of classes of valid covariance models over linear networks and more generally graphs which have edges that have additional euclidean structure.

Campus News

UC Davis ranked 104th best university in the world!

This ranking is based on 1,001 universities throughout the world, and was published by Quacquarelli Symonds (QS). You can find what some UCD students had to say about the ranking in our own campus newspaper, The Aggie, here: bit.ly/UCDranking2019

New lecture hall, California Hall, opens

In Fall 2018, a brand new lecture hall opened its door: California Hall. Located on California Avenue, this space holds nearly 600 students, making it the largest lecture hall on campus. Our very own lecturer, **JoAnna Whitener**, held the first course here: STA 13, Elementary Statistics. This provides campus with much needed classroom space.
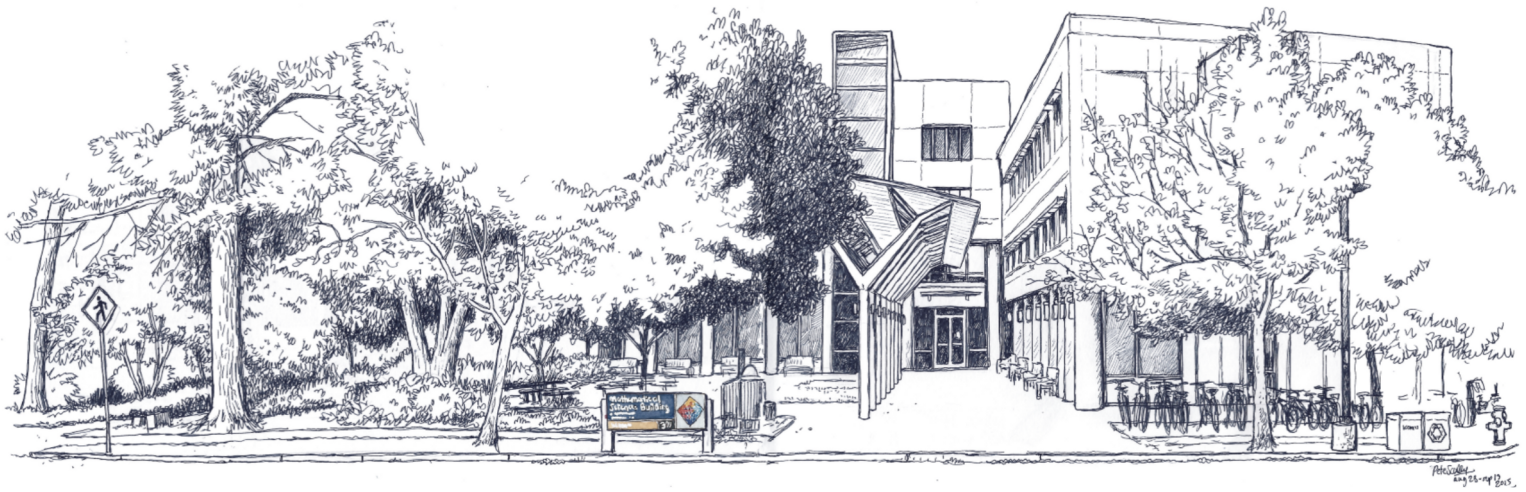
Chancellor May's strategic plan goals

To Boldly Go is Chancellor Gary May's 10-year strategic plan. It has been fleshed out to include 5 main goals. These are:

1. Provide an educational experience that prepares all of our students to address the needs and challenges of a diverse and changing world.
2. Enable and support research that matters at the frontiers of knowledge, across and between disciplines, in support of a health planet and the physical and societal well-being of its inhabitants.
3. Embrace diversity, practice inclusive excellence, and strive for equity.
4. Support our community, region, state, nation, and world through mutually beneficial and impactful partnerships that reflect a firm commitment to our mission.
5. Create an intellectual and physical environment that supports the development of an innovative and entrepreneurial culture.

For more details, please visit: https://leadership.ucdavis.edu/strategic-plan

We love to hear from our alumni!

Would you like to be in our next newsletter? Have a story to share?

Please get in touch at stat-grad-staff@ucdavis.edu.

Gifts large and small make all the difference to our department; they support our outstanding academic programs, advance the pursuit of new knowledge, and make innovative research possible.

To make a gift, please contact Charlene Mattison at 530-752-3429, or at cmattison@ucdavis.edu.

You can also donate online here: https://give.ucdavis.edu/Donate/YourGift/STATVRS