

STATISTICS

at Berkeley



An Interview with
Esteemed Professor
Bin Yu

Berkeley's Newest
Dorm: David
Blackwell Hall

Celebration of
Professor David
Aldous' Career

STATEMENT from the CHAIR

This semester has been a time to reflect on the past and a time to move forward. Looking back, we are proud that the University named an undergraduate dorm after our former colleague David Blackwell. Peter Bickel and David Aldous spoke at the dedication ceremony and told touching and funny stories about David's tenure in the department. I feel fortunate to have joined the department when David was still teaching. David Blackwell was an inspiration with his unique combination of brilliance and grace, and we're grateful that the university has recognized his contributions to the advancement of science.

Looking forward, we remain excited about the opportunities that data science brings to our department. The new data science major just started accepting applications at the end of September, and already over 1,000 students have declared their intent to major in data science. You may have read the official announcement of the launch of the Division of Data Science and Information at Berkeley in the Wall Street Journal and the New York Times in November. Our department and the Department of Electrical Engineering and Computer Science are integral parts of the new division. We also remain wholly in the Division of Mathematical and Physical Science (and EECS remains in the College of Engineering). MPS Dean Hellman has likened the configuration to a quantum state! We'll be taking much of 2019 to figure out what that means in practice...

This year's newsletter has pieces that remind us of the illustrious history of the Statistics Department, and how those who established the department shaped it. It also highlights our new members, who will shape our department for the future. In this changing environment, our department relies

more and more on the generosity of our donors, many of them alumni of our programs. To remain one of the top Statistics Departments in the world, we depend on your support to hire the most talented faculty and support the budding talent, our graduate students.

*Written by: Chair
Deborah Nolan*



Table of Contents

An Interview with
Professor Bin Yu

4

6

University Medal
Runner-Up: Will
Sandholtz

New Dorm: David
Blackwell Hall

8

12

The Retirement
of Professor Aldous

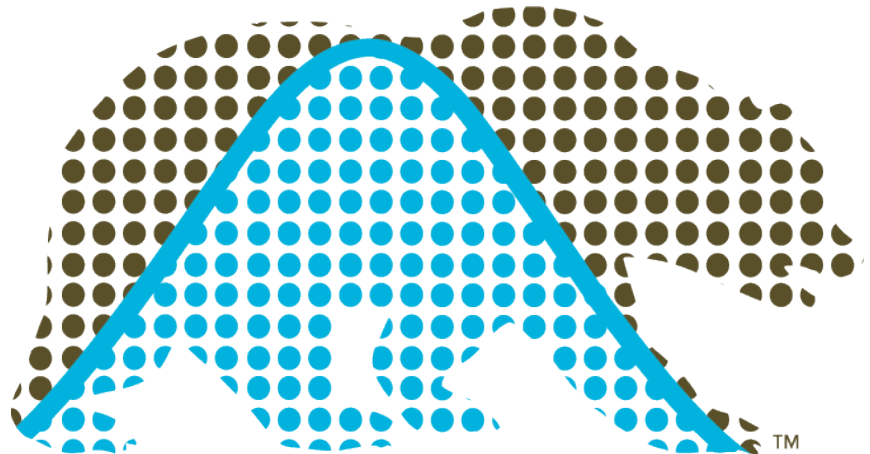
Also Included:

Statistics is Everywhere: 10

New Faculty & Faculty Awards: 14

Alumni Note 15

SUSA & SGSA Updates: 16



Bin Yu is Chancellor's Professor in the Departments of Statistics and Electrical Engineering & Computer Science (EECS). She is a member of the U.S. National Academy of Sciences and fellow of the American Academy of Arts and Sciences and was IMS president in 2013–2014. Her research group is engaged in interdisciplinary research with scientists from genomics, neuroscience, and medicine and in algorithm and theory research in statistical machine learning motivated by the interdisciplinary research. Over the past two decades Yu has mentored over 40 graduate students and postdocs.

Q: How would you describe your research group, and what are the key projects that your group is working on that you feel particularly embody your research philosophy?

I am extremely blessed with a group of talented students and postdocs from Stats and EECS who are enthusiastic about impactful and quality research, which is often slow by definition. Our philosophy is to provide a T or pi shaped research training that is both deep and broad with an emphasis on problem formulation and critical thinking in context, in addition to the conventional analytical and computational skill trainings. Due to the time-consuming nature of research under this philosophy, my group is known to publish a few well researched papers in a year on very diverse research topics including statistical machine learning algorithms and theory, and interdisciplinary research in neuroscience, genomics, natural language processing (NLP), and precision medicine. Cross-fertilization of ideas from diverse areas takes time but has

An interview with Professor Bin Yu: Her Research & Perspectives

Interview by Rebecca Barter & Karl Kumbier

led to unique and novel approaches to problems in my group. It also takes a long time for a statistics student to embed in a science group to learn their language, their way of thinking, to understand how data are collected, and how much work is needed to validate data results scientifically. Our goal is to understand and provide insights, meaning that we publish only when we feel that we have things worthwhile to share. We work hard to make our papers rigorous, accessible and clear.

In terms of research topics, we have many overlapping subgroups including neuroscience, genomics, natural language processing (NLP), causal inference, statistical machine learning (ML) theory, and precision medicine. While these topics may seem disparate from one another, we approach each with a similar framework: using prediction as a model checking criterion while dealing with computational issues effectively, and examining stability



and interpretability in this context. I am always asking how we can validate and explain our findings. These perspectives led to my PCS philosophy, which stands for Predictability, Computability, and Stability. PCS is a conceptual and practical framework with transparent documentation. Each of our research projects embodies this philosophy one way or another.

Q: Can you expand on PCS and the journey that led you to it?

The PC in PCS was motivated by the success and conceptual simplicity of prediction in statistical machine learning and ML's emphasis on computation up front. The project that originally sparked my interest in stability was the development of the estimation-stability with cross-validation (ES-CV) criterion for the Lasso model with my former student Chinghway Lim (now at National University of Singapore). Our goal was to develop stable reality checks for the models we were developing across a range of applications. From there, the finer issues of inference, reproducibility, and interpretability through stability grew out of scientific collaborations, especially with the Gallant Neuroscience lab. Stability is a form of robustness and extends the more traditional concept of robustness in statistics in that it is far more general. I think of stability as a unifying principle that underlies throughout the entire data science project cycle, from data processing to model checking, hence its importance in scientific and other collaborations.

I've developed this philosophy into a framework called PCS workflow and documentation in a paper with my student Karl Kumbier, and am also writing a book with my student Rebecca Barter that encompasses this philosophy in the context of Data Science and applied statistics. Both the paper and the book represent an attempt at transferring the knowledge that I have gained over decades. In particular, they intend to address the problem of how we use big data to produce interpretable results (or knowledge), to generate testable hypotheses, and to increase experimental efficiency. Keep an eye out for them!

Q: How do your current projects embody the PCS philosophy?

In our recent neuroscience deep learning project, DeepTune, with the Gallant Lab, I worked my student Yuansi Chen and former students Reza Abbasi-Asl (now at the Allen Inst for Brain Science) and Adam Bloniarz (now at Google) to build state-of-the-art predictive models for the visual cortex based on deep learning. We use the stability principle to arrive at DeepTune naturalistic images that characterize neurons in a very difficult primate visual cortex area V4. These images also provide good inputs to follow-up closed-loop experiments (testable hypotheses). Our genomics work has two thrusts: stability driven nonnegative matrix factorization (staNMF) and iterative Random Forests (iRF). The staNMF work with my former student Siqi Wu (now at Citadel) in collaboration with Erwin Frise and the Sue Celniker lab focused on developing a stability-based model selection criteria for nonnegative



Professor Yu speaking with members of the UC Berkeley Statistics community at JSM 2018 in Vancouver Canada

matrix factorization to investigate how cells in the early *Drosophila* embryo develop into organs. In a related line of work with my current student Karl Kumbier, former postdoc Sumanta Basu (now at Cornell University), and collaborator Ben Brown of this department and LBNL, we developed iRF that uses stability in predictive random forest models to identify high-order genomic interactions associated with embryonic development with the aim of providing recommendations for knock-out experiments in the lab. Recently, Ben and I, and a team of researchers from Stanford and UCSF, were awarded a Chan Zuckerberg Biohub Intercampus Research Award for which we will be developing methods to accelerate the pace of discovery of genetic determinants for cardiovascular disease. This project links traditional science, medicine, and data science, with iRF forming a key link.

Another recent project with my current students Jamie Murdoch, Chandan Singh, Karl Kumbier and my former student Reza Abbasi-Asl considers concepts and criteria for defining and evaluating the interpretability of ML algorithms. This was motivated by the fact that it's often difficult to understand how state-of-the-art supervised learning algorithms such as Deep Learning make accurate predictions. Actually, the idea came from Reza, for us to pull group members from different projects together to do an interpretability paper, since all the projects had or have to deal with interpretability but in diverse contexts. We think of stability as a prerequisite for such interpretations since it helps us identify which parts of the predictive model are consistent and therefore reliable.

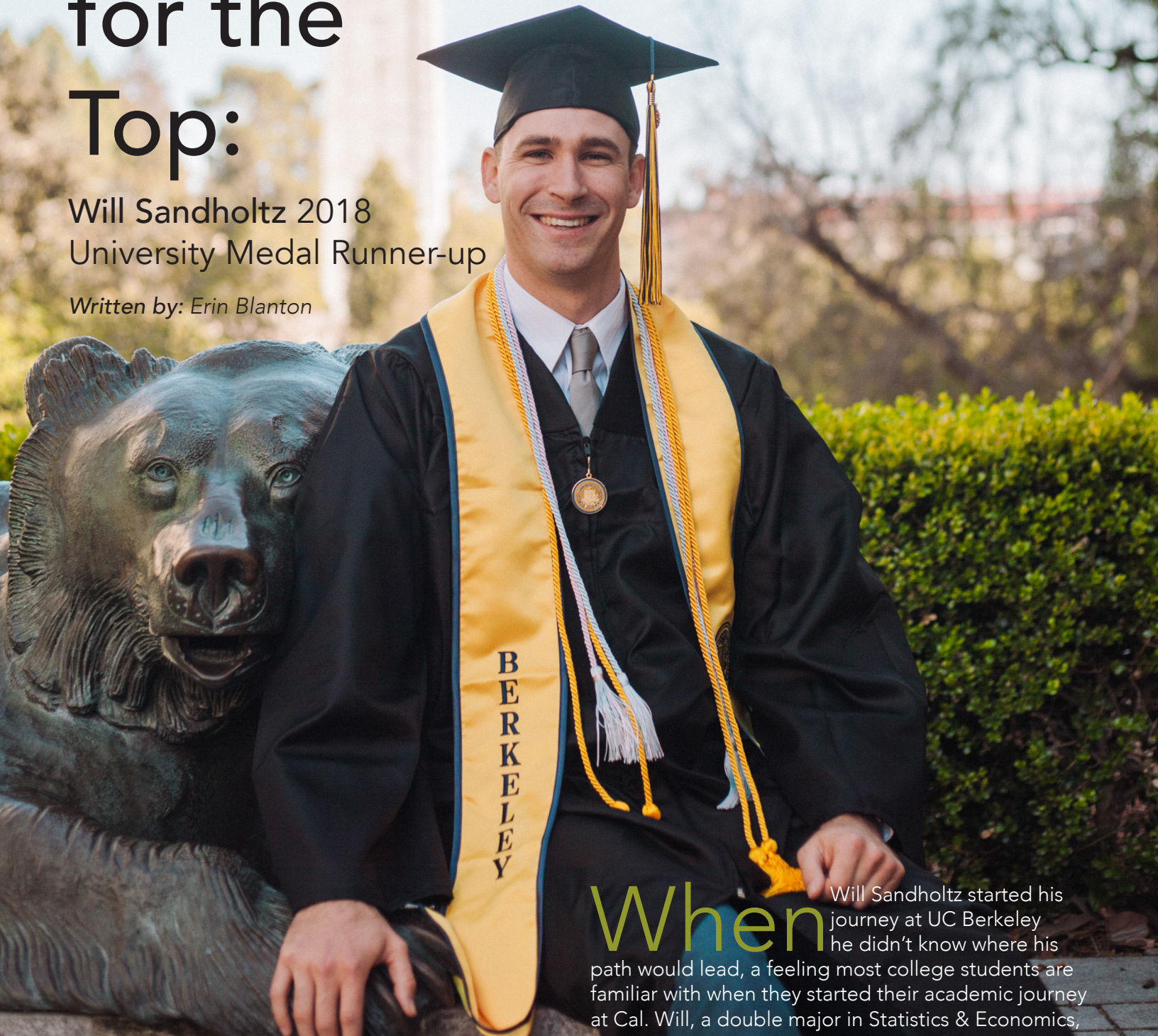
Q: What has been the greatest perspective shift you have experienced over the past decade?

My current approach centers effort on solving specific scientific problems together with knowledgeable collaborators. Consequently, the tools developed are ripe for consideration to solve other data problems. This is a first requirement for developing a useful tool in my view, that is, strong empirical evidence that it is the tool is shown to have solved at least one real problem. Empirically proven new tools can then be... **Story cont. on page 19**

Reaching for the Top:

Will Sandholtz 2018
University Medal Runner-up

Written by: Erin Blanton



When Will Sandholtz started his journey at UC Berkeley he didn't know where his path would lead, a feeling most college students are familiar with when they started their academic journey at Cal. Will, a double major in Statistics & Economics,

never imagined it would include being a runner-up for the University Medal, one of UC Berkeley's most prestigious awards given to a graduating senior. Like most of us, Will's journey started before he ever set foot on campus or decided to attend UC Berkeley. With a father who received his PhD from Berkeley and having grown up cheering on Cal sports, Will knew Berkeley was always going to be in the running. That being said, his decision to attend wasn't sealed until a visit to campus. As Will put it, "Campus is just really vibrant and not all of the (campuses) I visited felt like that. I think that was the point where I decided, 'Ok, I'm definitely going to come here.'" Being on campus sealed his choice, but Will's decision was made easier with the enormous support he had from his family. His mother and father, who are professors at UC Irvine in Education and the University of Southern California in Political Science respectively, encouraged him to choose the university he

felt was the best fit, despite other factors. So, it was with the support of his parents in Southern California and support from extended family here in the Bay Area, that Will came to Berkeley ready to forge his own path. For Will, he believes his academic success was a direct result of hard work. Like many of his fellow students, Will's time was often consumed with studying. He in fact attributes much of his academic achievements to his study habits, like rewriting lecture notes and focusing on learning theories and concepts, not just on practice questions. With such a strong commitment to his studies it came as no surprise that during a discussion of his statistics courses Will reflected that STAT 134: Concepts of Probability, which happened to be his very first course in statistics ever, was both the most challenging and rewarding course he took.

“I think some of my favorite classes were the harder ones that I had to work for. They felt more rewarding when you finally understood these concepts.”

Though much of his time was spent studying, Will's fondest memories of his undergraduate experience were from his time spent with friends. The majority of these memories came from his sophomore year, when he was able to live with his three best friends. “I feel like I won the lottery because they were there the first day with me, in my dorm, and we hooked up during the first orientation of our freshman year. We're all still friends and keep in touch.” It's clear Will values the relationships he's developed just as highly as the academic success he's achieved.

A testament to Will's commitment in maintaining a balance between academic studies and a social life is reflected in his activities outside the classroom. He found time to play volleyball on the

Cal club team all four years. He also found time to connect with his professors which provided him the opportunity to participate in undergraduate research. Will pushed himself to embrace every opportunity, whether it was spending time on the volleyball court or connecting with faculty, like one of his mentors Professor Gabriel Zucman from the Economics Department. This... is surely why he was accepted to multiple PhD programs and has decided to stay at UC Berkeley. He will pursue a PhD in Economics and he plans to research the role of government in the economy and how taxation can affect inequality. Will felt that without a strong statistics and quantitative background he would not have been able to delve into higher levels of economics.

His 4 years at UC Berkeley have made Will a Cal Bear, through and through. He celebrates the diversity of opportunities on campus. He embraces the university's mission to serve its community and residents of California. When asked for advice on how other alumni can make positive impact in their community, Will emphasized the importance of donating, volunteering, and voting. As Will put it:

“I think donating to Cal is important because, unlike a lot of the private universities that it's often compared to, it doesn't have a giant endowment. UC Berkeley has the goal of providing affordable education and those two, no endowment & affordable education, don't easily mix together. So I think it's important for people to be generous when they're donating to Cal because it's doing a public service for the state....

Story cont. on page 19



The Newest Dorm at UC Berkeley Named after the late **Professor Blackwell**

UC Berkeley's newest residence hall will be named after David Blackwell, the first black professor to ever receive tenure at UC Berkeley and a preeminent statistician, Chancellor Carol Christ announced on Thursday.

Blackwell, who died in 2010, is an "exemplar of what Berkeley stands for: scholarly excellence of the highest caliber tied to a mission of social justice and inclusion," Christ wrote in a letter nominating Blackwell.

The new dorm at Bancroft Way and Dana Street will house some 750 undergraduates and is slated to open in time for the fall semester, helping to ease UC Berkeley's undergraduate housing crunch. The building will have commercial space on its first floor and also house Stiles Hall, a community center for students.

In choosing Blackwell, Christ honored a dedicated teacher and statistician who made UC Berkeley his home for almost 50 years. He once said he loved to teach mathematics because "in transmitting it, you appreciate its beauty all over again."

"He never introduced himself as a professor, he always called himself a teacher,"

his son, Hugo Blackwell, told Berkeley News upon his father's death.

Scores of suggestions for naming the new residential unit were submitted by students, staff, faculty and alumni groups, which were then reviewed by

a committee of students, faculty and staff. Four "exceptional individuals" were submitted to Christ, who chose Blackwell.

Not only was Blackwell a gifted instructor who made the dizzying theorems of statistics accessible to hundreds of undergraduate and graduate students, he was a distinguished researcher who independently invented dynamic programming, a statistical method still used today in finance and areas like genome analysis.

That invention, and his development of a fundamental theorem still underpinning modern statistics, helped propel Blackwell, in 1965, to be the first African American inducted into the National Academy of Sciences.

"He went from one area to another, and he'd write a fundamental paper in each," Thomas Ferguson, an UCLA emeritus professor of statistics, told Berkeley News when Blackwell passed away. "He would come into a field that had been well-studied and find something really new that was remarkable; that was his forte."

But the world of mathematics was not always welcoming to Blackwell, who was born in a small town in Illinois in 1919. His father, a railway worker, and mother, who raised Blackwell and his three siblings, sent Blackwell to the University of Illinois at Urbana-Champaign at age 16. By 22, he had graduated with a Ph.D. in mathematics and set his sights on finding a home in academia.

Blackwell applied to 104 historically black colleges and universities, telling an ethnographer recording his oral history in 2002 that he assumed doors were closed to blacks at non-black institutions.

Story cont. on page 19



Photo courtesy of Brittany Hosea Small

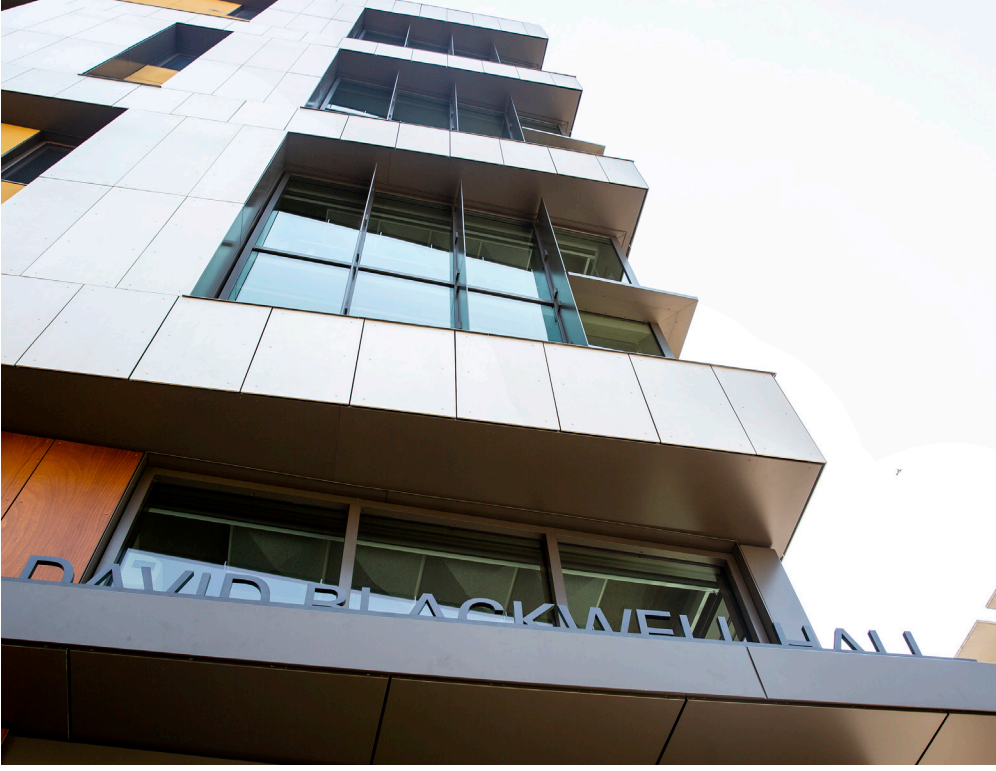


Photo courtesy of Brittany Hosea Small



The Reach of the Statistics Department:

A selection of the connections our faculty and students have both on & off campus

OTHER UNIVERSITIES

Harvard
Penn
Pitt
Columbia
Erasmus
Padova

MIT & UMICH: Statistics PhD student, Kellie Ottoboni, is collaborating with Professor Rivest of MIT, Professor Halderman and grad student Matt Bernhard of UMich. They are working on election security and putting together a paper on their work now.

UMass
University of Montreal
Stanford
UCSD
University of Washington
École Normale Supérieure
UCSF
Carnegie Mellon University
UCLA
Oxford
University of Wisconsin
University of British Columbia
UC Davis
ETH Zurich
University of Chicago
Yale
USC
SFSU
École Polytechnique Fédérale de Lausanne
Rice
Rutgers
Peking

Ohio State
King's College London
University of Toronto
John Hopkins University
Cal Poly
UC Santa Cruz
University of Colorado, Boulder
UC Merced
Ghent University
Cornell
École des Pont et Mines
National University of Singapore
Universitat Oberta de Catalunya
University of Waterloo

UC BERKELEY DEPARTMENTS

EECS
Neuroscience
Biology
Public Health
ESPM
Astronomy
Geology
Integrative Biology
History

PSYCHOLOGY: in spring 2018, the Statistics Department's consulting class worked with the UCB Department of Psychology on measuring infant responses to an examiner's hand movements as a measure of cognitive development.

Division of Data Science
MCB
Computational Biology
Energy Research
Agriculture Resources Economics
Psychology

Vision Science
 Plant & Microbial Biology
 Education
 Bioengineering
 Math
 Law School
 French
 Human Rights and Ethics
 Civil & Environmental Engineering
 Library
 Sociology
 Social Welfare
 Haas
 School of Information
 Transportation
 Linguistics
 Nutritional Science
 Political Science

Amazon
 Judicata
 PDT Partners
 Citadel
 Bloomberg
 Netflix
 Quantsight
 Quant Stack
 JP Morgan
 Clientigent
 Quantgene
 Genetech
 Theorem
 State Street
 Two Sigma
 Unidata

TGS Management Group

RESEARCH GROUPS/ORGANIZATIONS

NERSC

Mathematica Policy research

DSO National Labs

Government of Singapore

AMPlab

Bakar Computational Health Sciences
 Institute

Lawrence Berkeley National Lab

Nasa JPL

Bell Labs

Xfel

Simula

BIDS: The Berkeley Institute for Data Science, a research group on-campus, gives students and faculty a space to discuss the future of the field on projects like Cesium ML, an end-to-end machine learning platform for time-series

He Lab

Ngai Lab

Brain Initiative

RISE Labs

INDUSTRY:

Over the years Berkeley Statistics has built connections with industry through our Industry Alliance Program. Recently, a new fellowship was created through the generosity of Bridgewater and their work with faculty member, Professor Sekhon.

Children's Hospital of Philadelphia

Kaiser Permanente

Booz Allen Hamilton

Voting Verify Foundation

Microsoft

Google

Process Trading

Voleon

Nielsen Group

Facebook

Bidgely

Gelber Group

Tableau

Intel

Professor Aldous starts a New Chapter: Retirement



*Written by: Professor Jim Pitman
Photo courtesy of: Professor George Bergman*

David Aldous, one of our most distinguished senior professors, retired from full service in the Department in July 2018. He will continue to be involved in the Department as Professor Emeritus and Professor in the Graduate School.

David was first appointed in Berkeley as an Assistant Professor in 1979, after studying mathematics as an undergraduate at St. John's College, Cambridge and receiving his Ph. D. in Mathematics from Cambridge University in 1977, where he worked under the supervision of David Garling and Geoff Eagleson. He was promoted to Associate Professor in 1982, and to Full Professor in 1986.

David's first research work concerned a subsequence principle for transferring limit theorems for independent and identically distributed random variables to suitable subsequences of an arbitrarily distributed sequence of random variables. This study led to David's long term interest in exchangeability and related topics.

One of his most celebrated early works is his 1981 generalization of de Finetti's theorem to partially exchangeable arrays of random variables. This result,

obtained independently around the same time by Douglas Hoover, is now commonly known as the Aldous-Hoover theorem. David's 1983 survey on exchangeability and related topics laid the foundation for two decades of further research into various stochastic processes whose analysis was facilitated by ideas of exchangeability. These processes included various kinds of random partitions, random trees, and partition-valued and tree-valued stochastic processes. Another of David's interests dating back to

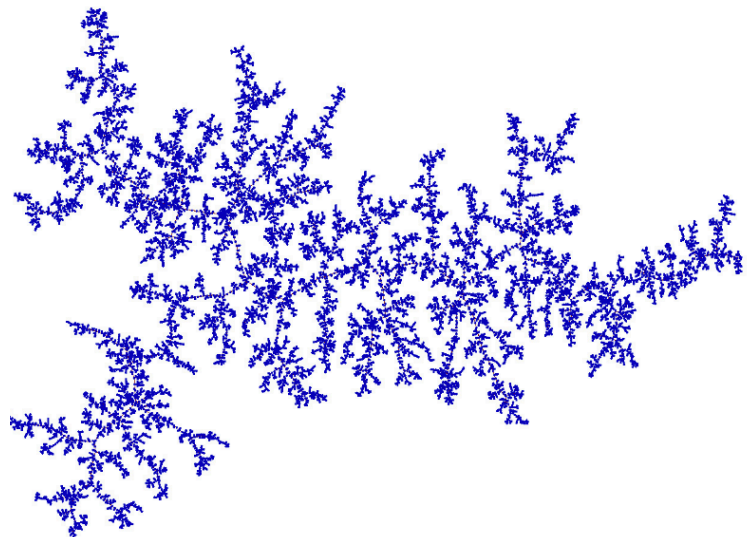


Image of continuum random forest tree

Cambridge days was the theory of weak convergence as a framework for comprehending the large scale asymptotic theory of various random processes. Combined with ideas of exchangeability, this led David in the 1990's to systematically develop the idea of studying large finite random structures by constructing a suitable infinite random structure which encapsulates the asymptotic behavior of the large finite structures as their size tends to infinity.

An exemplar of this paradigm is his now famous theory of continuum random trees as weak limits of various combinatorially defined random trees. The Brownian continuum tree, which (via an insight from Le Gall) he showed could be constructed in a completely different way from the excursions of a Brownian path, is an especially important instance of this theory. David's series of three papers on this topic were highly influential in following developments of the theory of Markovian super processes and the Brownian map by Le Gall, Miermont and others.

David's research also made a deep impression in several other areas of probability theory: rates of convergence to equilibrium in finite-state Markov chains, Poisson approximations in diverse contexts, probabilistic analysis of algorithms, and the analysis of coalescent processes and spatial random networks.

David's research achievements have been recognized in an array of the highest honors.

In 1980 he was awarded the Rollo Davidson prize. In 1993 he was the first recipient of The Line and Michel Loève International Prize in Probability, created in honor of Michel Loève by his widow Line. This prize, awarded every two years, recognizes outstanding contributions by researchers in mathematical probability who are under 45 years old. More recently, David has been responsible for the continuing administration of the Loève Prize. In 1994 David was made a Fellow of the Royal Society, and in 1998 he was an invited speaker at the International Congress of Mathematicians. More recently, he became a Fellow of the American Academy of Arts and Sciences in 2004, and a foreign



Professor Aldous with alums, Lea Popovic, Shankar Bhamidi, and Jose Palacios

associate of the National Academy of Sciences in 2010. He has also been the recipient of a number of honorary degrees and guest professorships.

On the administrative side, David served as Department Chair from 1997 to 1999, and as the chair of key departmental committees including the personnel and graduate committees. He also did substantial service to the profession as an associate editor of various probability journals, and as the founding editor of *Probability Surveys*, an open access journal for review articles in probability theory.

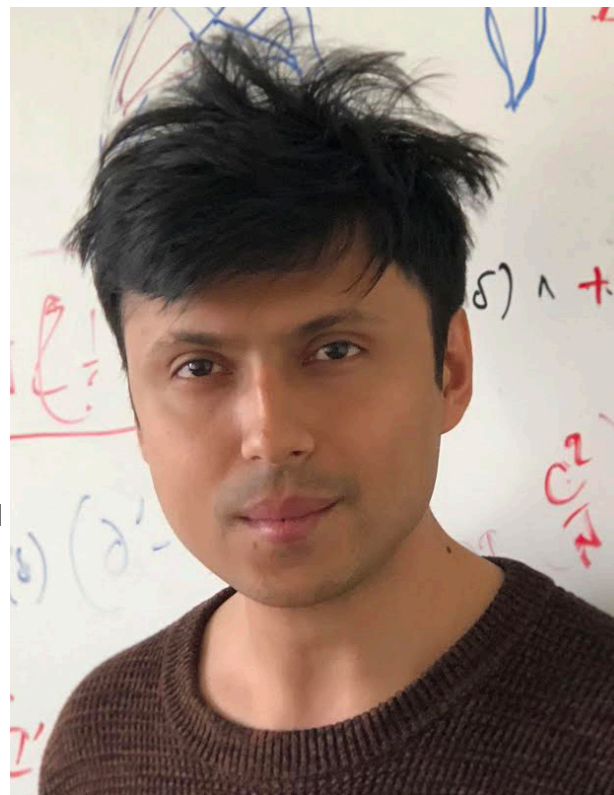
David played a central role in the department's Ph.D. program in probability. Over the course of his career he gave specialized courses on a large number of research topics. He was the advisor of 13 Ph.D. students and many post doctoral fellows. Among his students who went on to academic careers were Lea Popovic, Vlada Limic, Antar Bandyopadhyay, José Palacios and Shankar Bhamidi. David also contributed greatly to the social life of the department's probability group. Particularly memorable were the many holiday parties at his home on Alameda island, the biannual dinners in celebration of the Loeve prize, and the weekly lunches of his group of students and postdocs on the north side of campus.

At the undergraduate level, David developed the innovative course STAT 157 "Probability and the Real World"... **Story cont. on page 19**

NEW Faculty

Shirshendu Ganguly

joined Berkeley Statistics as a faculty member in July 2018 after spending two years as a Miller Fellow in the Statistics and Mathematics departments. Prior to that he obtained his PhD in Mathematics from University of Washington in 2016. He is interested in a wide range of problems in probability theory, statistical physics and related areas including Geometry of Polymers and other aspects of Disordered Environments, Phase Transitions in models of Self Organized Criticality, Study of Sparse Combinatorial Structures, Markov chains and Random walks.



Faculty AWARDS

Ben Brown:

- Intercampus Research Award, CZ Biohub. 2018

Peng Ding:

- Guy Medal in Bronze, Royal Statistical Society, United Kingdom, 2018

Noureddine El Karoui:

- Invited speaker, International Congress of Mathematicians (ICM) in the Probability and Statistics section, Rio de Janeiro, Brazil, 2018

Steve Evans:

- Hotelling Speaker, UNC- Chapel Hill Department of Statistics & Operations Research, 2018

Mike Jordan:

- Plenary Speaker, International Congress of Mathematicians (ICM), Rio de Janeiro, Brazil, 2018
- Intercampus Research Award, CZ Biohub. 2018

Fernando Perez:

- ACM Software System Award, 2017

Bin Yu:

- Intercampus Research Award, CZ Biohub. 2018

Spotlight

At JSM 2018 in Vancouver Canada, three UC Berkeley Statistics Faculty members were recognized for their work and contributions to the field of statistics.

Peter Bickel:

- SS Wilks Award, American Statistical Association, JSM Vancouver Canada, 2018

Deborah Nolan:

- Waller Award for Distinguished Teaching Career, American Statistical Association, JSM Vancouver Canada, 2018

Bin Yu:

- Elizabeth L. Scott Award, American Statistical Association, JSM Vancouver Canada, 2018

GRADUATION 2018



Erich Lehman Award:
Yuting Wei

Department Citation Award:
William Wang

**Department Citation Award in the
Master's Program:**
Mohamed Skander Jemaa
& Xinyi Zhang

Alumni Story

Dennis J. Aigner, MA, Applied Statistics, 1962

At UC Berkeley I was able to combine a Ph.D. in Agricultural Economics (with an emphasis on econometrics) with a master's program in the Statistics Department. I remember vividly my coursework with David Blackwell, Jerzy Neyman, Elizabeth Scott and Evelyn Fix. My supervisor was Ed Barankin, and I will never forget the work involved in preparing 50 questions (to which I had to know the answers) from which he would select some to ask me in my oral exam. Afterward, Ed told me that I passed in part because some of my questions were so good. (I guess the answers were OK too.)

As a married graduate student with two children, I helped support myself with a job as a Mathematical Statistician at the USDA Forest Service office in Berkeley (now in Albany). My first published journal article appeared in JASA in 1965 based on work I had done there.

My preparation in statistics at UCB served me very well during a research and teaching career in econometrics and statistics that spanned 45 years at four different universities, including a 20-year stint as one of the primary editors of the Journal of Econometrics. I also developed a consulting practice and secondary career as an expert witness, in which I am still active. Sample design and analysis, which I first learned in courses at the Statistics Department, became a lynchpin of that work.





Update from

SUSA

By: Adish Jain

Over the course of the last academic year, the Statistics Undergraduate Student Association (SUSA) saw a great deal of growth and change — the first of which came in the form of a new name, replacing the earlier Undergraduate Statistics Association. This change of name and logo brought with it a revitalization of the organization’s member base, events, and overall presence on the Berkeley campus.

Indeed, over the course of the Spring 2018 semester, SUSA saw incredible growth in its member body, boasting a record-high 100+ members. With this came a surge of events, both internal and external, that SUSA held. Internally, SUSA developed an office hours system to aid underclassmen pursuing statistics and data science classes, developed a series of refined lectures and presentations on statistical concepts, and held more socials than any previous semester. On the flip side, SUSA developed its external presence on campus by participating in a variety of outreach events. The organization, in collaboration with Nexus, hosted its first major tech company for a Data Science at Microsoft info-session. Moreover, SUSA worked to facilitate a tighter connection between undergraduates and Statistics faculty by introducing Faculty Coffee Chats in addition to its semesterly Faculty dinner. Additionally, with the new Nexus organization, SUSA leveraged connections with other data science-related organizations such as Cal Actuarial League and Data Science Society to co-host a variety of workshops and socials.

Throughout the coming semester, SUSA aspires to continue on this trajectory of growth. The executive team and the committee directors have some great new ideas which they hope to see materialize over the course of this next academic year. Perhaps the most ambitious of these ideas is the addition of an entirely new committee into SUSA’s structure. Headed by co-directors Patrick Chao and Isabelle-Townley Smith, the Education Committee will work on developing presentable lecture materials for subjects from Version Control, to Python and R, to more advanced Machine Learning topics. In addition to presenting these lecture materials and workshops at SUSA’s own Career Exploration committee’s meetings, SUSA will be working closely with the Data Science Society to push these resources out to the larger Berkeley community in the form of a joint-DeCal. SUSA hopes to use these lecture materials and its collaborative effort with DSS to form its own DeCal in the semester of Spring 2019.

Overall, SUSA has a jam-packed semester ahead of it, and we can’t wait to see these new developments transpire over the course of next year! Go Bears!

Update from SGSA

*By: Eli Ben-Michel, Bryan Liu,
Jamie Murdoch, & Sara Stoudt*

With the fulfillment of many old traditions and the introduction of several new ones, the SGSA had a fun and productive year. Starting with our annual welcome picnic, the SGSA continued to host a wide array of events to bring the department together. From highly contested foosball tournaments to lightly contested wind downs, good times were had by all. We also established some new events such as a Lunar New Year party co-organized with the masters students.

To bolster established events like the gender issues roundtable and diversity lunch, student leaders wrote a letter to the faculty addressing issues of community, diversity, and inclusion with the hope of strengthening the department's sense of community and ensuring that students are supported as they progress through the program. In response, Professor Deb Nolan set up a Community Task Force made up of students and faculty to solicit feedback from the graduate students, brainstorm ways to improve the graduate student experience, and make recommendations for ways the department can strengthen its sense of community and its support structures.

In an effort to provide a student-led support system, a new peer mentoring system was created. Incoming students were paired with existing graduate students. These mentors helped with the transition to PhD life by answering questions and providing advice. The program was a success and will be continued this coming year.

As we prepare to start a new year, the SGSA warmly welcomes the new cohort of incoming students and the two new co-presidents, Eli Ben-Michael and Bryan Liu. This year, SGSA will be tasked with implementing the recommendations of the Community Task force. One major theme of the recommendations involve facilitating formal and informal interactions between incoming or junior students and senior students. In addition to continuing the mentor program, the student seminar committee is tasked with creating a student seminar series to provide a setting for senior students to present their research or host workshops. More informally, we hope to organize weekly lunches as an opportunity for students to interact. We aim to maintain the SGSA website as a useful resource for both prospective and current students. We also wish to improve the overall sense of community by expanding the variety of wind downs to include board game nights, karaoke, or outings into SF. Our aim is to build a cohesive cohort across students in all stages of the PhD, where each individual can feel supported by all of their peers.



Ways to Make an Impact: Supporting Berkeley Statistics

The campus has continued to put strict limitations on the budget. This is why we depend on the support and generosity of our donors to help Berkeley Statistics remain one of the two preeminent centers for Probability and Statistics in the world. There are several ways to make an impact. One way is through a donation to a variety of identified needs in Berkeley Statistics, such as graduate student support, graduate student teaching top-offs, funds for the renovation of our classrooms and facilities, support to hold department seminars, and help for the student associations.

- Go online to www.statistics.berkeley.edu/giving. This will take you to a page that provides a list of established funds. The page provides links to descriptions of each fund and a link to donating online through the Give to Cal secure site.
- Use the enclosed envelope to make donations by check or credit card. Checks should be addressed to "UC Foundation." If you have an identified need or special fund that you would like to support please note on the check. If you do not identify a special fund, your donation will go to the Friends of Statistics Fund.
- Companies interested in becoming members of the Industry Alliance Program may contact Erin Blanton, Assistant Director of the IAP, for more information. 375 Evans Hall Berkeley, CA 94720-3860 eblanton@berkeley.edu 510.643.0589

THANK YOU TO OUR DONORS-

because of your generosity we are able to provide the world class education and conduct the groundbreaking research we are known for.

Rosemeri Abe
Dennis Aigner & Camille Bertolet
Rad & Syamala Aiyar
Monica Albe
Tamao Araki
Henretta Band
Charles Bloomquist
Colin & Valerie Blyth
Cynthia & Andrew Boyd
Mary Lou Breiman
Julie Chen
Yiqun Chen
Ching-Shui Cheng & Suzanne Pan
Judith & Herman Chernoff
Young Cho
John De La Parra
Peter Der
Tianhui Diao
Kinto Diriwachter
Steven Ellis
William Forrest III & Sarah Kelsey
Francis & Gayle Fujioka
Gary Ge & Ying Zhang
Rebecca Graff
Larry Gurley
Don Guthrie & Candace Tkachuck
Philip Heimann
Kate Holum
Marin Hood
Jianglong Huang
Xiaohong Huang
William & Lucie Huckabay
Estie & Mark Hudes
Barry & Kang Ling James
Imke Janssen
Kun Jin
Pierre Karashchuk
Shirley Koh
Michael Last
Armando Levy
Yao Li
Yujing Li
Mike & Letitia Lii
Sharon Lin & Andrew Bullen
James Long
Andrea Lucich
Douglas Maclaughlan
Megan Mcculloch
Dennis Moy
Nancy Mueller
Rosemarie & Tae Hea Nahm
Erza & Laure Nahum
Richa Namballa
Sahand Negahban
Kok Lip Ng
Pamela Ohara
Greta Olesen
Connie Ouyang
Dennis Pong
Daniel Race
Kurt & Evelyn Riedel
Jean & Francis Riley
Shey & Ya Sheu
Patricia Silver
Joan & David Skurnick
Yun Song
Birong Su & Fanqing Guo
Yalun Su
Virginia Thompson
Keith Tsukimura
Hiroto Udagawa
Wilhelmine Von Turk
Andrea Wang
Jane-Ling Wang
Yu Wang
Sue & John Welsch
Charlie & Patricia West
Eric Xu
Grace & Ta-Lun Yang
Ron & Anita Yee
Leon & Marie-Louise Yengoyan
Bin Yu & Kening Shen
Patrick Yu
Cynthia Zemlicka

Professor Yu: cont'd from page 5

analyzed under stylized models to obtain a better understanding of how and why they work. Mostly, I try only to invent tools that are solving new, real problems.

Q: At the beginning of your career, your work was much more on the theoretical side. How did you manage the transition from the mathematical to the applied realm?

I have been interested in the applied realm ever since I decided to go to graduate school in statistics in 1984 at Peking University. Even then, I knew that I wanted to use my math skills to benefit society, I just didn't know how. During my PhD at Berkeley, I started to gain applied experience and critical thinking skills by taking applied classes and more importantly having regular and extremely stimulating discussions with Terry Speed (one of my PhD advisors) on wide-ranging topics, research and beyond, and working on an applied statistical project with Speed and Dr. Krauss of LBNL. I was also talking to my other advisor Lucien Le Cam regularly and very much inspired by the fact that Lucien went into cancer research later in his career, especially considering how theoretical he was in his early career. But even though the interest and effort were there, in those days I only really published theoretical work.

Eventually, in the collaborative environment at Bell Labs in the late 90's while on leave from Berkeley, I started to move towards engineering and signal processing problems. I soon discovered machine learning through bagging and boosting, and over the next few years found collaborators in remote sensing, neuroscience, genomics and now precision medicine. These collaborations arose from satisfying my curiosities and embracing opportunities with people that I liked and worked well with, but it has always been my interest and drive to be useful that has propelled me to constantly seek and take new opportunities.

Q: What are your views on the importance of "soft skills" in research. Are there any particular soft skills that you would recommend graduate students and junior faculty focus on?

Probably the most important soft skill is the ability to communicate, resolve conflict, and work with others in a productive and fair manner. This requires the ability to understand oneself and others objectively in order to create a positive synergy, allowing the team to solve complex problems that can't be solved by any one individual by themselves.

Q: What changes do you believe would be most valuable for the field and why?

I believe that it is important to put practice and impact at the center of statistics, while using theory as a support to the practice. We need to value empirical evidence, new and relevant concepts, and new computational platforms as pillars of our enterprise. As statisticians, we need to be adaptive and expansive as new data challenges emerge.

Will Sandholtz: con'td from page 7

Volunteering is good too. Time and money are substitutes for me, as an economist. Even if you can't donate money, donating time to your community is good or whatever cause. I also think voting is important.... There are so many people in this world who don't have the ability, the opportunity and the privilege to have a voice in their own government...."

Will has a problem solving spirit and limitless potential. We are proud to count him as an alumnus of the Statistics Department and are excited to see what his future brings.

Professor Blackwell: cont'd from page 8

While a professor at Howard University, in 1941, Blackwell was approached by the chair of Berkeley's mathematics department and interviewed to join the faculty.

Blackwell didn't get the job, assuming his inexperience and the military draft had made a female competitor for the job a better candidate. Only when he finally joined Berkeley's faculty in the 1950's did he learn that his race had been the reason he didn't get the job, Blackwell said in a 2002 interview.

But times changed, and within 10 years Blackwell was offered a full-time position at Berkeley. He made tenure and eventually served as chair of the newly formed statistics department between 1957 and 1961.

Blackwell also served as assistant dean of the College of Letters and Science, where his job was to review requests from students about their classes, school policy or grades.

"I enjoyed that a lot, helping students," he said in the 2002 interview. "The student was asking to be excused from some regulation or be given some exemption or something of that sort. And I almost always said yes. We would have lively debates in the council of deans, and sometimes I'd win and sometimes I wouldn't."

"I enjoyed that," Blackwell added. "And I think I was helpful to the students."

Source (abridged): Kane, Will (February 8, 2018). New dorm to honor Berkeley's first tenured black professor. UC Berkeley News Center. <http://news.berkeley.edu/2018/02/08/new-dorm-to-honor-berkeley's-first-tenured-black-professor/>

Professor Aldous: con'td from page 13

as a project-based course for Statistics Majors, emphasizing the diversity of contexts where probability appears.

Beyond his research and teaching interests, David has contributed to the popularization of probability by numerous online reviews of popular books about probability, which may be found as part of the "Probability and the Real World" website which he maintains beneath his departmental homepage. His further interests include volleyball, science fiction, and Monte Python reruns.

University of California, Berkeley
Statistics Newsletter
Department of Statistics
367 Evans Hall
Berkeley, CA 94720-3860

NONPROFIT ORG
U.S. Postage
PAID
University of
California, Berkeley

Berkeley Statistics

UNIVERSITY OF CALIFORNIA

Would you like to **share a story** or
contribute to the **Newsletter**?

Please write to us at eblanton@berkeley.edu

We would love to include more news from our alumni. You can share anything you like and please send us photos!