

Odds

Purdue University

*Department
of Statistics*

*The Year in
Review*

&

Ends

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Felix Haas Hall



“With a promise to deliver higher education at the highest proven value, Purdue University President Mitchell E. Daniels, Jr. has put in motion an action plan designed to broaden Purdue’s global impact and enhance students’ educational opportunities”

Anyone who keeps track of changes at Purdue knows that the 2013—2014 academic year was a busy one. Our former governor, Mitch Daniels, completed his first full academic year as President and initiated what are now fondly referred to as “Mitch’s Moves” within the walls of Purdue Statistics, and “Purdue Moves” across campus. President Daniels’ focused initiatives cluster into three broad areas:

- 1) Science, Technology, Engineering and Math (STEM) Leadership
- 2) World-Changing Research
- 3) Transformative Education

The good news for Purdue Statistics is that we are involved and working in all aspects of the ten Purdue Moves (<http://www.purdue.edu/purduemoves/>), and we are well positioned for increased benefit and awareness for both the department and the discipline. Towards this end, we are working with Purdue University Marketing and Media on branding for the purpose of increasing the visibility of Purdue Statistics as a comprehensive unit that supplies foundational education in probability, theory and application, as well as big data analytics, computing, consulting, and modern teaching pedagogy. As Purdue University meets the grand challenges set forth by President Daniels, Purdue Statistics will continue to be one of the most far-reaching modern Statistics groups in the country.

Through the expansion of the College of Engineering (Move 1), the creation of the Purdue Poly Technical Institute (Move 2), and the growth of Computer Science (Move 3), Purdue Statistics will benefit from an increase in faculty numbers, research opportunities, and undergraduate and graduate student course enrollment. Already we have expanded our undergraduate and graduate service teaching courses to accommodate increasing numbers of engineering students.





Letter from the Head

Purdue Statistics

Further, we have seen increased numbers of both undergraduate and graduate students who are adding Statistics as their minor, or including a dual degree Applied Statistics Masters with their Ph.D. We are pleased to announce two engineering additions to the Purdue Statistics faculty roster. Associate Professor Raghu Pasupathy (2005 Ph.D.; Purdue Industrial Engineering) joins Purdue Statistics faculty (Fall 2014) from Virginia Tech.

Assistant Professor Stanley Chan joins Purdue Statistics from a postdoc at Harvard University; he received his Ph.D. (2012) in Electrical Engineering from the University of California, San Diego. Stanley holds a joint appointment with Electrical and Computer Engineering (75%) and Statistics (25%). We are equally pleased to welcome Assistant Professors Qifan Song (2014 Ph.D.; Texas A&M; Statistics), and Vinayak Rao (2012 Ph.D.; University College London; Machine Learning); both Song and Rao work in the area of Computational Statistics.

We all know that the field of Statistics is a collaborative science. Investing in drug discovery (Move 4) and advancing plant science research (Move 5) are two additional Purdue Moves that directly involve our Applied Statistics, Bioinformatics, Environmental Statistics faculty, as well as others. Working together with other interdisciplinary researchers from the broader Purdue University community, Purdue University alumni, faculty, staff, and students change the world every day. With the goal keeping Purdue Statistics strong, modern, and forward moving, Assistant Professor Shengchun Kong (2014 Ph.D.; University of Michigan; Biostatistics) and Assistant Professor Arman Sabbaghi (2014 Ph.D.; Harvard University; Statistics) join Purdue Statistics in the 2014-2015 academic year.

A world class department with world class faculty attract world class students. The second half of the Purdue Moves directly affect student success, affordability, and the future of not only Purdue Statistics, but the entire University. During my tenure as Head we have worked hard to meet the needs of the current day students who require more than the traditional (talking head) lecture that we all know so well. Toward this end (Move 6), the majority of our service teaching (i.e., students who are not majoring in Statistics, but required to take a Statistics course) faculty have received training in both online and flipped classroom instructional delivery. While we still have the traditional three-day a week lecture, that most of us remember well, Purdue Statistics delivers course instruction via a television studio, online with voice over lecture slides, and via the very popular “flipped” classroom where students listen to the online lectures before attending class in person.



The in person class time is no longer than a traditional lecture, but held in a special classroom with roundtables and chairs on wheels with whiteboards (no longer blackboards, folks!) that allow students to do in class exercises and projects together (aka, experiential learning”). The students support each other while the instructor and teaching assistants move around the room facilitating the work. The success of the flipped format is growing, and it seems that offering different delivery styles meets the needs of the students, improves communication, and facilitates learning Statistics in a positive productive environment.

With so many international students traveling to West Lafayette for their education, and since so many members of the Purdue Statistics community are international, it is essential that every one of our students is encouraged to gain international experience (Move 7). More and more Statistics and Actuarial Science undergraduates are spending a semester in another country for the purpose of studying in a new place, gaining cultural experiences, and expanding their understanding of the world beyond the culture in which they are most comfortable. Graduate students and faculty are traveling to international meeting to promote their research, and to extend the Purdue Statistics network worldwide. Every semester Purdue Statistics hosts both international students and faculty for a week, month, or longer so that our visitors can work with our faculty and students on global research collaborations.

The National Science Foundation funded Statistics Living-Learning Community (<http://www.stat.purdue.edu/llc>), led solely by Purdue Statistics faculty, is focused on creating a living and learning environment for sophomore Statistics majors (Move 8). Even though Purdue Statistics awards the most undergraduate degrees in Statistics (108 in 2013) in the United States, this five year grant has an overarching goal to increase retention of undergraduate Statistics majors as they transition from their first year through their second year of study. Purdue Statistics faculty facilitate the second year transition into higher-level Statistics courses, supervise peer focused mentoring, and expose students to a variety of research experiences. The Statistics Living-Learning Community welcomes the first cohort of twenty sophomores for the 2014-2015 academic year.

While nowhere in the details of the Purdue Moves is the broad research mission of Purdue University or graduate education mentioned, we assure all of our alumni and friends that Purdue Statistics is keeping its foundation in theory and probability very strong while growing into areas that require leadership in both applied and theoretical statistics, as well as probability.



We, like most faculty across Purdue, are concerned about the administration's focus on becoming a year-round University (Move 9). The recent efficiencies bought on by an administrative freeze on tuition and tightening of administrative processes has strained Purdue Statistics, as well as most units on campus. We are operating under the same budget with increasing student numbers and reduced space, yet expected to participate in the growth of the University via the ten initiatives set forth in the "Purdue Moves".

This said, Purdue Statistics is increasing the service teaching courses over both the summer and academic semesters, but at the same time protecting the research mission of the department. Our faculty continue to provide strong leadership and guidance to our graduate students, who are in demand by government (e.g., Center for Disease Control, Food and Drug Administration, Census Bureau, etc.), industry (e.g., Apple, Eli Lilly, Facebook, Google, etc.) and academics (e.g., Duke, Harvard, Northwestern University, etc.). And, while these same faculty are providing world class instruction during the academic year, leading world class research groups, and collaborating internationally, they are also governing Purdue University to the best of their ability. Our unwavering goal for Purdue Statistics is to increase the value and reputation of a Purdue University education (Move 10) via our knowledge and dedication to both the students and the discipline without sacrificing quality and discovery.

Hail Purdue.



Department of Statistics & Actuarial Science Program 2013 Outstanding Alumni

Congratulations to Peter Mueller and Brian Carteaux, the 2013 Outstanding Alumni in Statistics and Actuarial Science. The Outstanding Alumni Award honors an alumnus for their contributions and leadership within their profession.

2013 Statistics Outstanding Alumnus Peter Mueller was born in Vienna, Austria. He attended the University of Wien in Austria as an undergraduate and received his Master's degree there. Peter was accepted in the Department of Statistics here at Purdue University in the Fall of 1986 as a Fulbright Scholar. Under the direction of Professor James Berger, Professor Mueller received his Ph.D in 1991 from the Department of Statistics.

Professor Mueller spent several years at the Institute of Statistics and Dec Sciences, Duke University and at M.D. Anderson Biostatistics. Peter is currently a Professor of Mathematics at the University of Texas, Austin.

He is a fellow of the American Statistical Association; a member of the Institute of Mathematical Statistics and the International Society for Bayesian Analysis.

Professor Mueller's favorite memory of Purdue is "first and foremost a great statistics department." He enjoyed graduate student life. He also met his wife, Gautami Shah, at Purdue.



*Peter Mueller
Department of Mathematics
University of Texas at Austin*



*Department of Statistics & Actuarial Science Program
2013 Outstanding Alumni*

Brian Carteaux earned his B.S., as a dual major in both Actuarial Science and Statistics in 2000 from Purdue University. He became a member of the American Academy of Actuaries in 2003, and is currently the Senior Vice President, L&H Liability Portfolio Manager at Swiss Re American Holding Corporation in Fort Wayne, Indiana. The Swiss Re Group is a leading wholesale provider of reinsurance, insurance, and other insurance-based forms of risk transfer.

Like most actuaries, Brian loved math. While trying to decide what to do with math interests, he knew that he liked using math to solve problems, especially in a business setting, so Actuarial Science was the natural choice.

Mr. Carteaux's favorite memory during his time at Purdue University was his marriage proposal to his now wife. The setting was Ross-Ade stadium. It was the Purdue vs. Indiana University (IU) football game, and Brian's entire family—plus thousands of fans—watched as he proposed on the jumbo screen. Luckily Christina said yes!



*Brian Carteaux
Senior Vice President, L&H Liability Portfolio
Manager
Swiss Re American Holding Company*



Alumni News



Eric Chicken is a 2001 Ph.D. graduate of the department. He is currently a Professor at Florida State University in Tallahassee. He is active in modern nonparametric statistics research fields, including functional analysis, sequential methods, and complex system applications.

He is co-author of *Nonparametric Statistical Methods*. It is one of the primary texts in nonparametric statistics.



Congratulations Graduates!

August 2013 Graduates

Ph.D. Graduates

- * Ching Yun (Veavi) Chang
- * Glen DePalma
- * Juan Hu
- * Jeffrey Nisen
- * Sanvesh Srivastava



MS Graduate

- * Nicholas Fico



Graduate Certificates

- * Yi Lou
- * Jin Sun



Congratulations Graduates!

December 2013 Graduates

Ph.D. Graduates

- * Glen DePalma
- * Cheng Liu
- * Jeffrey Nisen
- * Han Wu
- * Danni Yu



MS Graduates

- * Jorge Alfaro Murillo
- * Wei Dou



In Remembrance...

Professor Marcel Neuts

Professor Marcel F. Neuts passed away on March 9, 2014.

Marcel was born on February 21, 1935 in Ostend, Belgium. He was a loving and devoted family man. Because of his great love of mathematics, Professor Neuts began his studies at the University of Louvain in Louvain, Belgium. He and Olga moved to the United States and Marcel pursued graduate studies at Stanford. He earned his PhD in statistics from Stanford in 1961. He became a professor at Purdue in 1962, and was on faculty here for fourteen years. Professor Neuts went on to become a distinguished professor at University of Delaware in 1976, and retired from the University of Arizona in 1997.

Professor Neuts published five books on mathematics. He was an excellent speaker and traveled around the world as a guest lecturer. He embraced many different cultures and spoke many languages. He had a great love of nature. Camping across the United States was one of the many pastimes he enjoyed.

Marcel is survived by his wife of 54 years, Olga; sister, Jenny Malysse and family; children Chris Neuts (wife Kathy), Myriam Neuts, Kitty Sedam (husband Mark) and Debbie Neuts; and grandchildren, Haley, Tyler and Steven Sedam.



Marcel F. Neuts



In Remembrance...

Emeritus Professor Louis J. Cote

Louis J. Cote passed away on March 14, 2014 at the age of 92.

Lou was born in Detroit, Michigan in 1921. He served his country during WWII as a meteorologist in a B25 flying out of Calcutta, India. He returned from the war and finished his studies at the University of Michigan. While there, he met Lillian. They married and moved to New York where Lou earned his PhD in mathematics at Columbia University. He became a professor of mathematical statistics at Purdue University in 1954. After a brief stint at the University of Syracuse, Lou and his family came back to Purdue in 1958 and retired in 1991.

Professor Cote will be remembered as having a wealth of old songs and poems in several languages. He was a volunteer for the Friends of the West Lafayette Public Library and served on the boards of several other organizations.

Lou is survived by his wife Lillian E. (Grundfest) Cote, his four children: John, Charlie, Sarah and Paul. He also has two daughters-in-law: Carla Koertge and Ellen Nelson and a son-in-law: Dan Reinker. He is also survived by two grandsons, Carl and Sam.



Louis J. Cote



In Remembrance...

Emeritus Professor William J. Studden

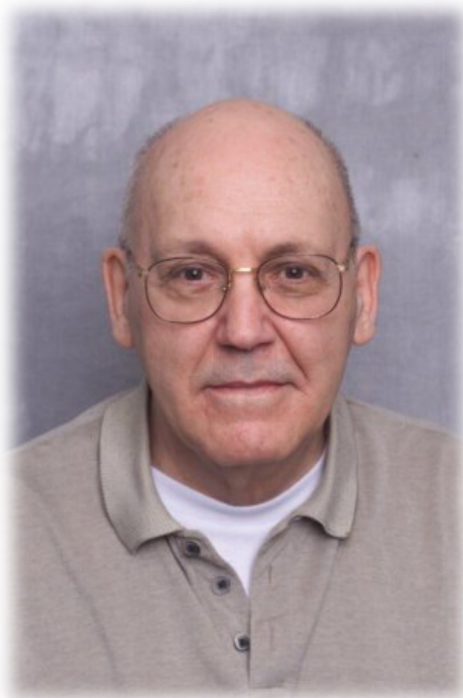
William J. Studden passed away unexpectedly on March 19, 2013.

Bill was born in Hamilton, Ontario, Canada on September 30, 1935. Professor Studden received his B.Sc. From McCaster University and his PhD in Statistics from Stanford University.

Bill was a leading figure in the field of Optimal experimental design. During his career he published over 80 articles in peer-reviewed journals and co-authored two books.

Professor Studden joined the Department of Statistics at Purdue in 1964, He advised sixteen PhD students. He maintained an “open door” policy with his students. He was quick to share his ideas with his colleagues and was an excellent scientist in mathematical statistics. Although he retired in 2005, he remained active in research.

Bill is survived by his wife, Myrna M. Harrison Studden and many friends in the statistical world.



William J. Studden



New Arrivals

Congratulations to Tiantian Qin and Xiangyu Zhang on the birth of Alex Q. Zhang. Alex was born on May 31, 2013. He weighed 6 lbs. 10 oz. and was 19.5 inches long.

Julio Enrique Figueroa Chang was welcomed in to the world by his parents, Jose Figueroa-Lopez and Veavi Chang. Julio was born June 9, 2013. He weighed 7 lbs. 12.9 oz.

Xiao Wang and Guanjun Zeng welcomed their son, Lucas Wang, into their little family on May 25, 2013. Lucas weighed 8lbs. 12 oz. and was 22 inches long. Big sister Sarah helped welcome him home!

Congratulations to Jeff and Mari Nisen on the birth of their son, Jack Alan Nisen. Little Jack was born June 26, 2013. He weighed 6 lbs. 7 oz. and measured 19 inches long.



May you touch dragonflies & stars, dance
with fairies & talk to the moon.

May you grow up with love & gracious
hearts & people who care.

Welcome to the world little one, it's been
waiting for YOU!!!



Joint Statistical Meeting 2013

The 2013 Joint Statistical Meeting (JSM) was held in Montreal. It is the largest gathering of statisticians held in North America. It is held jointly with these societies:

*American Statistical Association

*Institute of Mathematical Statistics

*International Biometric Society (ENAR and WNAR)

International Chinese Statistical Association

International Indian Association

International Society for Bayesian Analysis

Korean International Statistical Society

*Statistical Society of Canada

(*indicates the founding societies of JSM)

Attended by more than 6,000 people, meeting activities include oral presentations, panel sessions, poster presentations, continuing education courses, an exhibit hall (with state-of-the-art statistical products and opportunities), career placement services society and section business meetings, committee meetings, social activities and networking opportunities.

The Joint Statistical Meetings provide a unique opportunity for members to come together each year and share their scientific ideas. The theme for 2013 was Celebrating the International Year of Statistics. The program highlighted the power and impact of statistics on all aspects of science and society on a global scale.



Joint Statistical Meeting 2013

Purdue's Department of Statistics had a great showing at the 2013 JSM. Our Faculty and students won many awards and presented several talks and posters.

- **Mary Ellen Bock** was presented the Founders Award for sustained and effective service to the ASA over many years as ASA vice president, ASA president, chair of the Section on Statistical Computing, chair of the Committee on Fellows, chair of the Nominations Committee, and chair of the Founders Award Committee and for her sustained presence as an extraordinary role model for women in the ASA.

The Founders Award was established to recognize members who have rendered distinguished service to the association. The recipients of this award are not notified in advance that they will receive the award; it is presented as a surprise during the awards ceremony at the Joint Statistical Meetings.

- **Frederi Viens** was named as an IMS Fellow for his contributions to stochastic analysis and its applications to mathematical physics, finance and statistics, and for his service to the community

IMS Fellows are chosen based on demonstrated distinction in research in statistics or probability, by publication of independent work of merit.

- **Hao Zhang** was inducted as a Fellow in the American Statistical Association (ASA).

In order to be eligible for nomination, a person must be a current member of ASA, with continuous membership for three years.

- **Wei Sun** was awarded the IMS Student Travel Award

IMS Travel award are granted to fund travel and possibly other expenses to present a paper or a poster at an IMS sponsored or co-sponsored meeting for those who otherwise would not be able to attend the meeting. The Travel Award are available to IMS members who are new researchers.

Montréal Canada
JSM2013

Joint Statistical Meeting 2013



Myra Samuels Lecture



Myra Samuels

The Myra Samuels Memorial Lecture is named in memory of Myra Samuels, who was associate professor of biostatistics and epidemiology in Purdue's Department of Veterinary Pathobiology and associate director of Statistical Consulting in the Department of Statistics. She received her Ph.D. in statistics from the University of California, Berkley, under Jerzy Neyman, and taught at Purdue for 24 years. Her research was oriented toward issues in biostatistics and included both conceptual issues in mathematical statistics and collaborations on applications.

We were honored to have Dr. Peter McCullagh as our speaker. Dr. Peter McCullagh is currently the John D. MacArthur Distinguished Service Professor in the Department of Statistics at the University of Chicago.

Peter's research interests include statistical models and scientific applications. He is the coauthor of *Generalized*

Linear Models. The International Statistical Institute awarded Dr. McCullagh the 2013 Karl Pearson Prize, which recognizes a contemporary research contribution that has had a profound influence on statistical theory, methodology, practice or applications.

Dr. McCullagh is a Fellow of the Royal Society and the American Academy of Arts and Sciences. He is also a member of the American Statistical Association and the Institute of Mathematical Sciences. He has received numerous awards and recognition for his research, including to Guy medals from the Royal Statistical Society. He also received the CPOSS President's award in 1990.

Dr. McCullagh's abstract was titled: *Survival Models and Health Sequences*. Medical investigations focusing on patient survival often generate not only a failure time for each patient but also a sequence of measurements on patient health at annual or semi-annual check-ups while the patient remains alive. This talk was concerned with a general technique—temporal realignment—for constructing statistical models for survival processes.



Peter McCullagh

Pillai Lecture 2014



K.C.S. Pillai

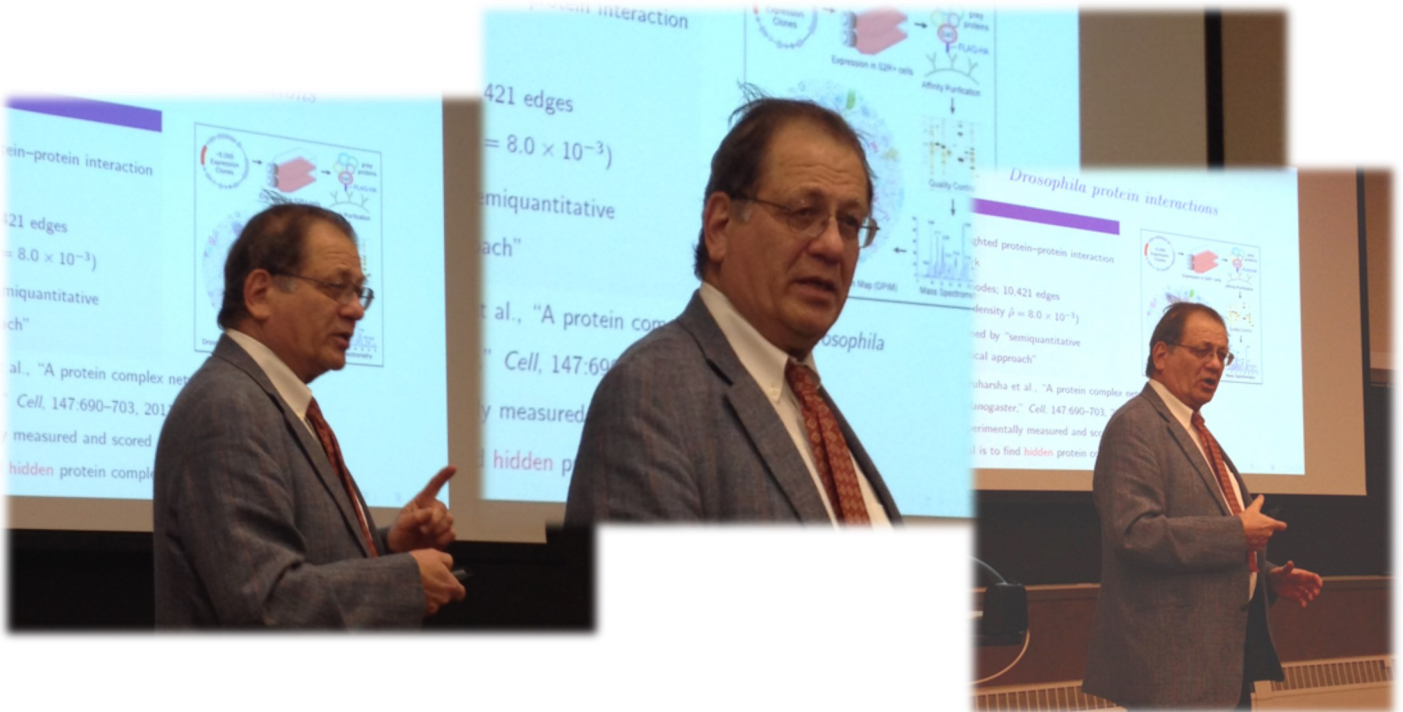
It was our distinct honor to have Peter J. Bickel, Emeritus Professor of Statistics at the University of California, Berkeley, speak at the Pillai Lecture this year. Professor Bickel presented his talk titled: ***Nonparametric Inference for Unlabeled Graphs.***

Professor Bickel is widely recognized as one of the greatest statisticians of our time in any metrics. His exceptional record of research accomplishment is evidenced by his extraordinarily many publications in the very top ranking journals in the field of statistics.

We were also delighted to welcome Sudha Pillai to the lecture. Ms. Pillai is the daughter of Professor K. C. Sreedharan Pillai. She gave a brief speech honoring her late father.

The K.C.S. Pillai Memorial Lectures were founded in memory of Professor Pillai, who joined the Purdue faculty as Professor of Statistics and Mathematics in 1962. Previously he was a Senior Statistical Advisor for the United Nations. In this capacity he founded the Statistical Center at the University of the Philippines.

His chief contributions to statistics were in the field of multivariate statistical analysis. His leadership in statistical research was recognized by his being named a Fellow of both the American Statistical Association and the Institute of Mathematical Statistics.



G.A. Ross Award

Congratulations to Austin Childs for being awarded the 2014 G. A. Ross Award!

Austin has proven himself to be a positive influence in the classroom, out of the classroom and in the Greater Lafayette Community.

He is an exceptional student; he is completing two majors of Mathematical Statistics and Mathematics with Statistics and has maintained an amazing 3.98 cumulative average. He maintains this excellent GPA while pursuing other interests and having a servant heart toward the University and Greater Lafayette Community.

He has taken on leadership roles on campus that contributed not only to Purdue's success, but also his fellow students. He is currently an RA, leading a hall floor of about 45 students, most of whom are freshmen. He is involved in the Ultimate Frisbee Club, and during his sophomore year took on the role of Community Service Chairman.

He has demonstrated his excellent character in many ways. He organized Purdue's Ultimate Frisbee Club's involvement in the Winterization program in Lafayette, helping Lafayette residents prepare for winter by raking leaves, cleaning out gutters and doing other chores. He was a Purdue Student Ambassador for his first two years at Purdue. He volunteered at the Visitor Information Center. Austin also volunteered with the 21st Century Scholar's Office to help students who might otherwise have a difficult time adjusting to college life.

The G. A. Ross Award is presented annually to a senior male who has demonstrated "high standards of academic achievement, evidence of outstanding leadership, strength of character, and overall contributions to the University." The recipient of the award receives the G.A. Ross medal, a certificate, and a cash prize. The names of the winners are inscribed on an obelisk at the northeast corner of the Purdue Mall.

The award is in honor of George A. Ross of Lafayette, a 1916 graduate of Purdue University and the first full-time executive secretary of the Purdue Alumni Association. George presented the University with an endowment to establish an award for the outstanding student in each graduating class. The G.A. Ross award was first given in 1959.

He is an amazing young man and is an outstanding example of leadership, strength of character and an inspiration to those whose lives he has touched.



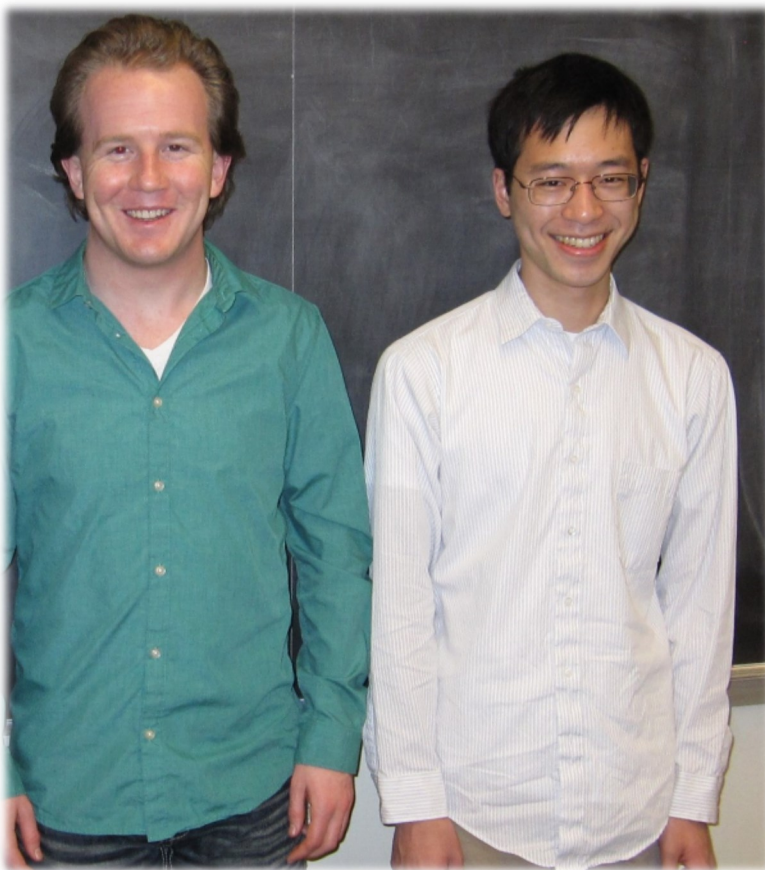
Baxter Award

The Glen E. Baxter Memorial Fund was established in 1983 by family and friends of Professor Baxter shortly after the premature death of this gifted teacher-scholar.



Glen E. Baxter

Annual proceeds from the fund are used to honor undergraduate students who have demonstrated excellence in mathematics. The recipients of the awards are selected by a committee of professors from the Department of Mathematics and the Department of Statistics.



2014 Baxter Award recipients

Robert Hanson and Michael Yeh

2013 Department Fall Picnic

The annual Fall Picnic was a success again! This annual event is held in honor of our new students.

The picnic was held at Ross Hills Park on Saturday, September 14, 2013. It was a beautiful sunny day—a great day to be outdoors and among friends.

There was plenty of good food and good times. We had a terrific turnout, with over 135 people in attendance! The price of admission? A covered dish! From appetizers to desserts—there was a little something for everyone's taste.

We had a surprise this year—a new department popcorn maker! It is sure to be a new favorite at many more department picnics and events!

Another surprise was a bounce house for the kids...some of the adults joined in the fun too!

We ended the picnic with the always competitive Annual Department of Statistics Cornhole Tournament. We had an overwhelming response to sign up for the event. With a record 27 teams and lots of spirit, victory ultimately went to reigning champions, Mark Pillion and Hao Zhang!

Congratulations Mark and Hao!



2013 Department Fall Picnic



FOOD ALLERGY WARNING
Our food may contain peanuts, tree nuts, and dairy.



After Holiday Party “Mismatched”

On Friday, February 21, 2014, the Department of Statistics held its annual After Holiday Party. It was a huge success with over 125 people in attendance. Faculty, staff, students, friends and family all gathered at the Elks Country Club to celebrate together!

Every year we choose a different theme, and this year’s theme was “Mismatched”. Everyone put their imaginations to work and arrived in all kinds of mismatched outfits!

We had a great carry-in dinner with lots of delicious food. We also had a raffle for a set of cornhole boards. Mary Roe was the big winner of the cornhole boards! Congratulations Mary!

There was plenty of delicious food. We had games, karaoke, and door prizes. A good time was had by all.



*After Holiday Party
"Mismatched"*



2014 Spring Awards

The Department of Statistics extends congratulations to the faculty and student award winners for the 2013-2014 academic year. The awards program was held on Thursday, April 17, 2014, College of Science Dean Jeffrey Roberts presented the awards to a number of faculty, staff and students.



2014 College of Science Outstanding Statistics Students Stephen Mussmann, Jenna Reno, and Rustam Orazaliyev pose with College of Science Dean Jeffrey Roberts



Faculty & Staff Awards

Douglas Crabill—Professional Achievement Award

“For excellent support to faculty and staff for IT needs at an exceptional level; for consistently volunteering himself for departmental functions and social activities and for serving as a role model.”

Professor Bruce Craig—Engagement Award

“For excellent leadership in the Statistical Consulting Service, for providing outstanding statistical consulting to support faculty research and to train graduate students, and for significant interdisciplinary research projects.”

Marshay Jolly—Professional Achievement Award

“The departments of Mathematics and Statistics recognize Marshay Jolly for her outstanding support of the business enterprises of the departments and for her positive and proactive approach of assisting faculty and staff.”

Continuing Lecturer Sarah Sellke—Outstanding Service to College of Science Department Award

“For outstanding contributions to STAT 350 by developing and offering online sections and IMPACT sections, and for overall contribution to a friendly and positive environment.”

Jerrod Welsh—Customer Service Award

“For consistent support and prompt attention to IT needs, for excellence in maintaining the Windows systems and network in the Department of Statistics and in the College of Science.”



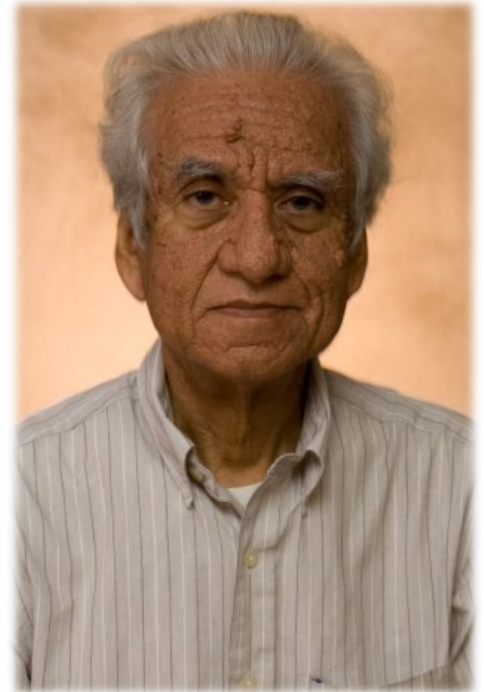
Members of the Statistics Department pose with Dean Jeffrey Roberts after receiving College of Science Faculty and Staff Awards

Accomplishments

Congratulations to Professor **Jayanta Ghosh** for being honored with India's Padma Shri award in the discipline of Science and Engineering. The President of India approved conferment of 127 Padma Awards including one duo case (counted as one). The list comprises two Padma Vibhushan, 24 Padma Bhushan, and 101 Padma Shri Awardees.

Padma awards, the country's highest civilian awards, are conferred in three categories, namely, Padma vibhushan, Padma Bhushan, and Padma Shri. The Awards are given in various disciplines/ fields of activities:

- Art
- Social work
- Public Affairs
- Science and engineering
- Trade and industry
- Medicine
- Literature and education
- Sports
- Civil service
- Etc.



Dr. Jayanta Ghosh

Padma Vibhushan is awarded for exceptional and distinguished service, Padma Bhushan for distinguished service of high order, and Padma Shri for distinguished service in any field. The awards are announced on the occasion of Republic Day every year. The awards are conferred by the President of India at a function held at Rashtrapati Bhawan sometime around March/April.



Accomplishments



Mark Daniel Ward

Professor **Mark Daniel Ward** has been appointed as Managing Editor for the journal *Applicable Analysis and Discrete Mathematics*. It is the successor journal of Publikacije Elektrotehnickog fakulteta—Serija Matematika, which was founded in the year 1956. It is published by the University of Belgrade and Academic Mind, Belgrade.

Applicable Analysis and Discrete Mathematics is currently ranked as 5 out of 296 journals in pure mathematics by Thomson Reuters'. The stated scope is, "Applicable Analysis and Discrete Mathematics publishes original papers in Mathematics, particularly in classical mathematical analysis, complex analysis, functional analysis, differential and difference equations, special functions, combinatorics and graph theory, mathematical applications in probability and statistics, numerical analysis and computer science."

A recent discovery could lead to easier genetic modification of plant varieties considered recalcitrant to standard methods, including varieties of economically important crops. **Rebecca Doerge**, the Trent and Judith Anderson Distinguished Professor of Statistics, and **Dr. Gayla Olbricht** former PhD student of Doerge, now on faculty at Missouri University Science and Technology provided the statistical analyses of these data.

A Purdue University research team identified a gene that influences susceptibility to infection by *Agrobacterium tumefaciens*, a bacterium that is used as a tool to insert genes into plants to produce traits such as resistance to pests, diseases or harsh environmental conditions or to improve the nutrition or shelf life of a crop.



Rebecca Doerge

Gayla Olbricht

Accomplishments

Frederi Viens, Professor of Statistics and Mathematics here at Purdue University, has been named Fellow of the Institute of Mathematical Statistics (IMS). An induction ceremony took place August 5, 2013 at the Joint Statistical Meetings in Montreal, Quebec, Canada.

Professor Viens received the award for his contributions to stochastic analysis and its applications to mathematical physics, finance and statistics, and for his service to the community.

Each Fellow nominee is assessed by a committee of his/her peers for the award. In 2013, after reviewing 44 nominations, 20 were selected for Fellowship. Created in 1935, the Institute of Mathematical Statistics is a member organization which fosters the development and dissemination of the theory and applications of statistics and probability. The IMS has 4300 active members throughout the world.

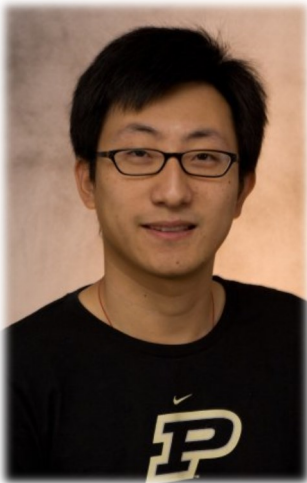
Approximately 8% of the current IMS membership has earned the status of fellowship.



Frederi Viens

Eleven Purdue University faculty members won 2012 Faculty Early Career Development awards from the National Science Foundation, one of the most prestigious NSF honors for outstanding young researchers.

The NSF issues about 400 early Career awards annually. Guang Cheng, Jose Figueroa– Lopez and Jennifer Neville, represented the winners in the Department of Statistics; securing 25% of the early career awards that were issued to Purdue University.



Field of Dreams Conference 2013

The National Alliance for Doctoral Studies in the Mathematical Sciences held its Seventh Annual Field of Dreams Conference at the Phoenix East/ Mesa Hilton Hotel in Mesa, Arizona.

This conference is an excellent opportunity for faculty and corporate partners to network and discuss common research interests. It gives Alliance Graduate Mentors an opportunity to get to know and recruit some of the most promising undergraduate students in the math sciences today.



Research Profile—Olga Vitek

Mass spectrometry-based proteomic experiments identify and quantify the protein components in complex biological mixtures. These experiments are complex and diverse, and a statistical mindset is required to reduce bias and inefficiencies, distinguish the systematic variation from random artifacts, and maximize the reproducibility of the results. Although some of these goals can be achieved with standard statistical methods, or with methods developed for technologies such as gene expression microarrays, this is typically insufficient. There is a need for specialized statistical methods, which reflect the details of sample preparation and spectral acquisition, and which are meaningful to both experimentalists and statisticians.

Mass spectrometric proteomic workflows often require us to summarize the quantitative information across multiple spectral features generated by a protein. We proposed a general and flexible family of linear mixed models for this task, and showed that it outperforms the frequently used alternative summarizations. Currently the family contains 55 different model instances, which are customized to various experiment and data types. The models are implemented in a Bioconductor package MSstats. Since proteomic practitioners are often unfamiliar with R, the package is also implemented as an external tool within Skyline, a popular GUI tool for quantitative proteomics. Each of the implementations has over 200 unique downloads per month. In 2014 we were invited to present the capabilities of MSstats in short courses in USA, Switzerland, Italy, Spain, India and Korea. This work is led by a PhD student Meena Choi, and is recently published in *Bioinformatics*.

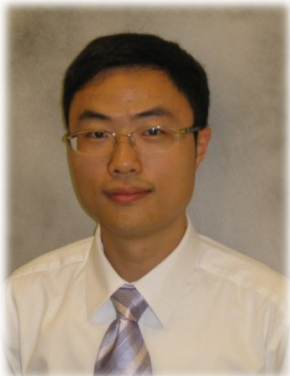
Many mass spectrometric workflows spike labeled isotope-labeled reference proteins or peptides in constant concentration into the biological samples of interest. This strategy allows us to eliminate some of the technical variability associated with the experiment. Although effective, the strategy is often impractical, time-consuming and costly. We proposed a statistical approach that performs just as well, but only requires a reduced subset of reference peptides. The approach extends the linear mixed effects models above with an Empirical Bayes framework, combines the information across all the proteins that are quantified in the experiment, performs interval imputation of the absent reference peaks, and accounts for the uncertainty associated with the predictions in the downstream statistical inference. The approach also allows us to select an optimal experimental design and choose a subset of reference peptides for follow-up investigations. This work is led by a PhD student Ching-Yun (Veavi) Chang, as is recently published in *Nature Methods*.



Olga Vitek

New Faculty

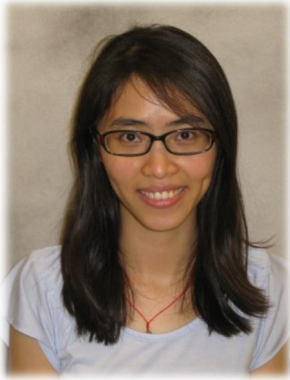
Ms. Wenxiang Cai will be a Visiting Scholar this year (August 2014 to August 2015). She will be visiting from the University of International Business and Economics in Beijing, China and will be working with Professor Hao Zhang.



Dr. Ho (Stanley) Chan will fill a tenure-track position as an Assistant Professor of Electrical and Computer Engineering (75%) and Statistics (25%). Dr. Chan received his Ph.D. in Electrical Engineering from the University of California, San Diego.



New Faculty



Dr. Shengchun Kong will fill a tenure-track faculty position as an Assistant Professor of Statistics. Dr. Kong received her Ph.D. from the Biostatistics Department at the University of Michigan.



Dr. Yitao Liang will be a visiting scholar this year (August 2014 to August 2015). He will be visiting from the Henan University of Technology in Zhengzhou, China and will be working with Professor Hao Zhang.



New Faculty



Dr. Kalyani Nagaraj will be a Visiting Assistant Professor in Statistics for the academic year (August 18, 2014 through May 17, 2015). During the Fall semester she will teach three sections of STAT 225 and during the Spring semester she will be conducting research with Associate Professor Raghu Pasupathy.



Dr. Raghu Pasupathy will fill a tenure-track faculty position as an Associate Professor of Statistics. Dr. Pasupathy received his Ph.D. in Operations Research from Purdue University and previously worked at Virginia Tech.



New Faculty



Dr. Vinayak Rao will fill a tenure-track faculty position as an Assistant Professor of Statistics. Dr. Rao received his Ph.D. in Machine Learning from the Gatsby Computational Neuroscience Unit, University college London and completed a Postdoctoral research appointment in the Department of Statistical Science at Duke University.



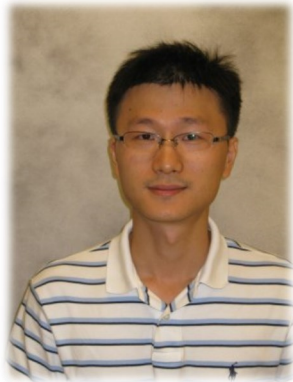
Dr. Bettina Romer will be a Limited Term Lecturer in Statistics this Fall (August 18, 2014 through January 4, 2015). She will teach for sections of STAT 301. Dr. Romer received her Ph.D. in Chemistry from Stanford University.



New Faculty



Dr. Arman Sabbaghi will fill a tenure-track faculty position as an Assistant Professor of Statistics. Dr. Sabbaghi received his Ph.D. from the Department of Statistics at Harvard University.



Dr. Qifan Song will fill a tenure-track faculty position as an Assistant Professor of Statistics. Dr. Song received his Ph.D. from the Statistics Department at Texas A&M University.



Thank you!

Statistics Alumni, Faculty, Family, and Friends:

It's hard to believe that 2013 has already come and gone. We welcomed a new class of terrific graduate and undergraduate students last year, and our current students continue to get a great education and find unique, interesting jobs. We were able to reconnect with many Boilermakers at various events in 2013, including JSM and our Outstanding Alumni awards. Purdue Statistics continues to thrive under Professor Doerge, and we're looking forward to another successful year in 2014!

Countless alums supported Purdue Statistics with gifts in 2013, which we greatly appreciate! We also had several alums support the department with planned gifts, which help Statistics in strategizing to ensure the long-term success of our department. Both methods of giving have an incredible impact on our current and future successes. If you ever have questions about giving back to the department, please don't hesitate to reach out to me directly, as I'm always happy to answer questions or requests. Thank you to everyone who supported Purdue Statistics with a gift in 2013!



Aaron Kosdrosky

If your contact information has recently changed, please let us know, as we love to stay connected with our alums and provide updates on the Statistics department. You can go online to www.stat.purdue.edu click on the "Alums" option in the left column, then select "Send Us Your News/Update Your Information." This is a great way to stay connected with the department!

Thanks again for a terrific 2013, and we look forward to an even better 2014!

Boiler Up,

Aaron Kosdrosky

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