



# DEPARTMENT *of* STATISTICS NEWS

## Combining Information from Multiple Data Sources:

### The Ongoing Story of Antidepressant Safety *by Elly Kaizar*



Elly Kaizar

**M**any of us take for granted that the drugs our doctors recommend or we buy will relieve our symptoms as promised on their labels, and do so without harming us. Design and analysis of randomized controlled trials (RCTs) to establish efficacy is well understood,

but the answers are not so easy when we turn to the question of safety or effectiveness in the general population. Elly Kaizar and Master's student Taylor Pressler are collaborating with statisticians, epidemiologists and health services researchers at Nationwide Children's Hospital, Carnegie Mellon University and several other institutions to find solutions to questions of the safety and effectiveness of treatment in a general population.

To conclude a drug is safe, we would like to accept the null hypothesis that patients who use the drug on average experience the same negative outcomes as those who do not. If the drug is not safe but the negative outcome is rare, an unreasonably large study would be required to discover this increased risk. Thus, we need to find ways of accurately and precisely estimating the effect of a drug on safety outcomes other than relying on one or two RCTs. For example, consider whether or not antidepressants increase suicidal thoughts and behaviors among depressed children. This safety question is particularly tricky because the efficacy of the drug in reducing depression is inversely related to the safety of the drug with regard to suicide, and has been the primary focus of our group's work.

Using a collection of all available antidepressant RCTs to assess safety is a reasonable first approach, since this increases

the effective sample size and RCTs are the 'gold standard' for measuring the effect of treatment. The random assignment of treatment to each subject eliminates the possibility of confounding from other variables. For example, if patients with severe depression both choose to use antidepressants and experience suicidal thoughts more often than those with

mild depression, it will be impossible to distinguish whether the increased suicidal thoughts are caused by the severity of the depression or by the antidepressant. Our group has proposed methods for combining RCTs that overcome the numerical difficulties of traditional approaches to combining trials with rare outcomes.

By design, the patients enrolled in RCTs are different from the general population of patients. So even if the combined analysis was ideal, the results could be misleading for the general target population. It is particularly concerning that antidepressant RCTs usually exclude patients who are at risk for suicide at the start of the study. That is, the group of patients for whom antidepressants might be most effective and safe are not included in our drug assessment. Implicit extrapolation from RCT results to general medical care has been routine and even considered best practice.

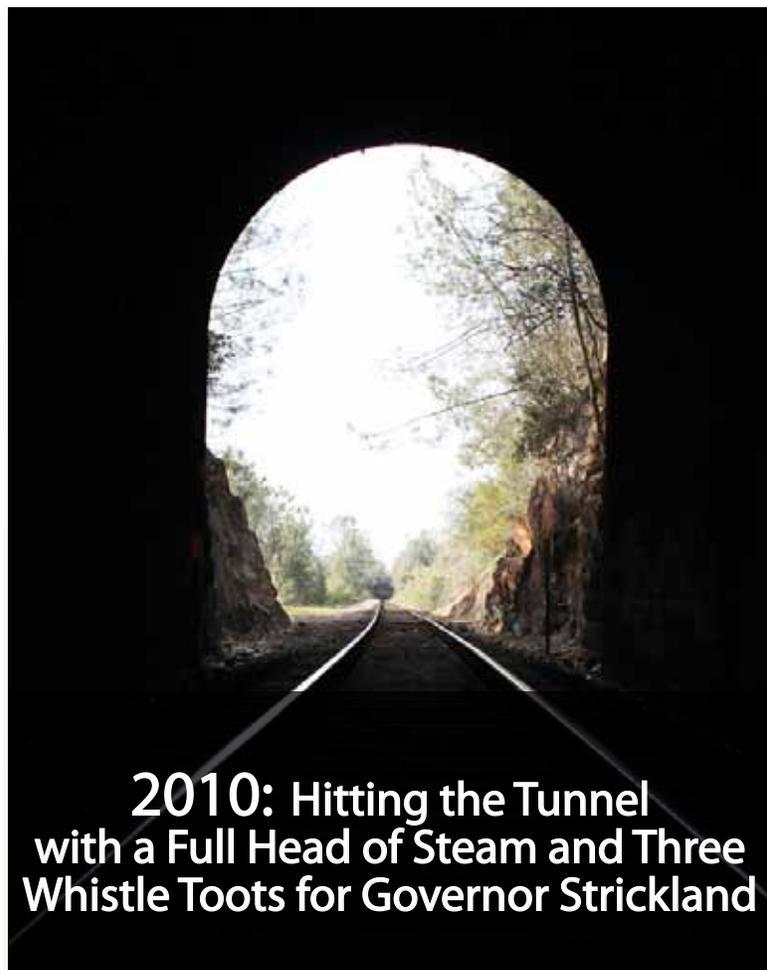
Our group has been developing general methods to assess and adjust for the limited generalizability of RCTs due to constrained enrollment. One approach is to analyze the many available sources of evidence, such as surveys, health insurance and pharmacy sales records, ecological data, detailed European databases of health care, and records from the US Department of Veteran's Affairs. For example, by comparing the RCT results and the Youth Risk Behavior Survey, we have been able to confirm that the exclusion rate for antidepressant studies is quite large, and the risk of biased results due to exclusion is unlikely to be negligible.

We have also been studying direct estimation of the bias due to systematic patient exclusion. Since observational data do not benefit from random treatment assignment, the biggest challenge is to avoid bias due to confounding. We found that sufficient conditions for unbiased estimation of RCT generalizability are much weaker than sufficient conditions for direct estimation of treatment effect using observational data. By carefully combining RCT and observational data in a single analysis, we can be more confident that our estimates are unbiased for the average safety or effectiveness for the entire group of depressed patients who rely on antidepressants.

The question of antidepressant safety has been a useful test case, and we continue to improve our estimation for this problem by refining methods for combining data to reduce both assumptions and estimator bias and variance. But the questions of RCT combination and generalizability are broadly important public health questions for the assessment of safety and efficacy. Our work continues to raise awareness of the issues of relying solely on RCTs to make decisions, and influence accepted practice for drug evaluation. ♦

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## 2010: Hitting the Tunnel with a Full Head of Steam and Three Whistle Toots for Governor Strickland



Doug Wolfe

**G**reetings to everyone from your Department of Statistics! This has been an exciting and rewarding year for the Department and our graduate program. In April, the US News & World Report (USNWR) published their very first national rankings of graduate programs in Biostatistics and Statistics independent from Mathematics. We are very pleased to let you know that our graduate program in Statistics ranked 20th among all graduate programs in Statistics and 12th among all public institutions with graduate programs in Statistics. In September, the long awaited assessment of research-doctorate programs by the National Research Council (NRC) was released and once again our graduate program did very well. Based on faculty survey

data to determine the appropriate weightings for data related to twenty characteristics that directly impact the quality of graduate programs, the NRC used sophisticated regression methodology to produce R (regression) rankings of Statistics graduate programs. As with the USNWR rankings, our Statistics program did very well in these R-rankings, tied with Duke University and the University of Washington for 18th among all graduate programs in Statistics and tied (again with the University of Washington) for 10th among all public institutions with graduate programs in Statistics. We are also ranked 10th among public institutions (20th overall) in faculty and graduate student research activity (a combination of publications, citations, percent of faculty holding research grants, and recognitions through honors and awards) and ranked 6th among public institutions (13th overall) for the percentage of faculty having external grant support for their research. We are also among the top 15 statistics graduate programs at public institutions (among the top 20 overall) in several other categories, including number of graduate students, faculty size, average number of Ph.D.s graduated per year, percentage of female graduate students, and percentage of female faculty members. Finally, we are among only 15 graduate programs in statistics at public institutions (20 overall) that provide the full range (all eighteen designated by the NRC) of student activities for our graduate students. These excellent USNWR and NRC rankings attest to the degree of commitment from our faculty and staff in providing a quality graduate program in the Department of Statistics—you can be as proud of your alma mater as we are of our graduates. It takes quality on both sides to produce this excellence in USNWR and NRC evaluations.

In our 2009 Newsletter I reported on how fortunate we had been during the previous few years to have had Governor Ted Strickland committed to sparing higher education from the brunt of the effects of the economic recession affecting the world. He stood firmly by higher education at the expense of other areas that experienced severe budget cuts in state funding. Unfortunately, he paid the price and was defeated in his reelection campaign and the prospects for a similar commitment to higher education in the coming biennial budget discussions are dim at best. In this Newsletter I want to personally thank Governor Strickland for his dedication to higher education in Ohio over the past four years. Our new governor, John Kasich, has many tough decisions to make over the coming months but through it all I very much hope that he will continue to find ways to maintain the support of higher education at the public universities in Ohio.

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### Faculty and Staff Awards and Honors—Kudos

Department faculty members continued to receive national recognition for their important contributions to our profession. **Omer Ozturk** was selected as a Fellow of the American Statistical Association and **Michael Browne** was presented with the 2010 Lifetime Achievement Award in recognition of his career contributions to psychometrics! Additionally, **Angela Dean** was elected chair-elect of the ASA section of Physical and Engineering Sciences. Well done, Omer, Michael, and Angela!

**Yoonkyung Lee** will be taking a Faculty Professional

Leave for Winter Quarter and Spring Quarter 2011. She will pursue joint research activities with other experts in the field of statistical learning in the Department of Statistics and the Statistical Research Center for Complex Systems at Seoul National University. She also intends to develop a new course on modern nonparametric smoothing techniques for regression and density estimation while there.

A paper coauthored by **Greg Allenby**, the Helen C. Kurtz Chair in Marketing at the Fisher College and Adjunct Professor of Statistics, was the recipient of the 2010 Long Term Impact Award by the INFORMS Society for Marketing Science. The award is given annually to a research paper published within the last five to 10 years that has been judged to have had the greatest impact in the field. Bayesian Statistics and Marketing, which Allenby coauthored with Peter Rossi of the University of California at Los Angeles, was published in 2003 in the journal Marketing Science.

**H. N. Nagaraja** resigned from the Department to accept a new position as Chair of the Division of Biostatistics in the College of Public Health here at OSU. We extend our appreciation to Raj for his many years of excellent contributions as a faculty member in our Department and wish him the very best in his new administrative position in the College of Public Health. Thanks and the very best in your new role, Raj!

**Paul Brower** continued his winning ways by being selected to receive a 2010 University Distinguished Staff Award, the TOP staff award given by Ohio State. Well done, Paul!

### Faculty and Staff Changes

**Mark Fojas** succumbed to the lure of the west (the second person in two years), as he left our computer support group to take a new position in California. **Tom Marker** joined our Department in October as the newest member of the computer support team.

**Kathy Stone** elected to retire from Ohio State in August. Her position will be reconfigured in conjunction with unifying changes at the Business Services Center of the College of Arts and Sciences. In the meantime, **Ada Draughon** has been providing excellent temporary help in the Department office.

Under the capable leadership of **Chris Holloman**, the Statistical Consulting Service (SCS) has begun an expansion of both its internal and external services. To help facilitate this expansion, **Steve Naber** has been added to the staff in the SCS as a Senior Consulting Research Statistician and **Kelly VanDenBerge** has been hired to serve as Program Assistant for the SCS.

Brief profiles for Tom, Steve, and Kelly are provided elsewhere in the Newsletter.

### Miscellaneous Department Activities

**Elizabeth Stasny** and **Lisa Van Dyke** did it once again—we have another outstanding group of new graduate students, including the same number, thirteen, of University Fellowship recipients as last year. Only four graduate programs across the University (Economics, English, Political Science, and Psychology) exceeded this number of Fellowships and they all have much larger graduate programs than ours. Another

well deserved thank you to Elizabeth and Lisa!

We are heavily indebted to **Tao Shi** for his leadership as Chair of the ad hoc Department Website Redesign Committee and for his ongoing commitment as Chair of the new Department Communication Committee. We all appreciate the vast improvement in our Department presence on the web that has already taken place. Thank you, Tao, and the rest of the Department Website Redesign Committee!

**Angela Dean** and **Peter Craigmile** continue to crack the whip and herd the faculty forward in the conversion of our graduate program and curriculum from the quarter system to the semester system. This has been a slow and tedious process for everyone, but it is clear that we would not still be talking with each other had it not been for the efforts (and good spirits) of Angela and Peter. Thanks to both of you for your leadership with this process.

Our Department is only as good as our alumni and we can only know how good our alumni are if you tell us how you are doing! Please let us know of exciting (or same old, same old good) things that are happening in your professional and personal lives by dropping Elizabeth Stasny or Lisa Van Dyke an email message at eas@stat.osu.edu or lvandyke@stat.osu.edu.

Also, continue to keep us in mind if your company or institution is planning to hire another statistician or host a summer intern. We will make sure our best graduate students are aware of the opportunity and encourage them to follow in your footsteps.

### Adios, Statistics Express One Final Ode to the Train

The Statistics Express has run full steam,  
Rivers crossed and mountains climbed,  
Wind in our hair and sun on our back,  
Curves and bends have formed the track;  
But yonder lies the station drop,  
And slow we must, as some must stop;  
Clackety, Claackety, Claaackety, Claaaack;  
What a wondrous ride it has been!

Transition accomplished, 'tis time to reload,  
Track is laid, trajectory up;  
The future exciting for all those who stay,  
Challenge and promise will show them the way;  
So blow the whistle and stoke the fire,  
ON BOARD all, the goal is still higher;  
Cliiickety, Cliiickety, Cliickety, Click;  
What a wondrous ride it will be!



## Ear Bones Reveal Spawning Secrets of Lake Erie Walleye

Based on an article by Pam Frost Gorder



Beth Mangel Pflugeisen



Kate Calder

Ecologists have long believed that fish tend to return to the same river where they hatched in order to spawn. But Bethann Mangel Plugeisen, who recently completed the M.S. degree in statistics and wrote a thesis under the supervision of Professor Kate Calder, has determined that the old rule doesn't always apply – not for Lake Erie walleye, at least.

Using a statistical analysis of chemicals found in walleye ear bones, Mangel Plugeisen was able to estimate the percentage of walleye hatched in the Sandusky and Maumee rivers that returned home to spawn, and the percentage that strayed elsewhere. Mangel Plugeisen discovered that almost all the walleye that spawned in the Maumee were hatched in the Maumee, but only two thirds of the walleye that spawned in the Sandusky were hatched

in the Sandusky. Most of the remaining third had hatched in the Maumee. Her findings, which were presented at the Joint Statistical Meetings in Vancouver, British Columbia last August, will help wildlife officials determine which rivers may be at risk of overfishing and which may not.

Otoliths, commonly called “ear stones,” are actually inner ear bones that help fish sense their balance and movement in the water. Similar structures perform the same function in the human ear. “As fish grow, the otoliths grow, too,” said Mangel Pflugeisen. “Every day, new layers are deposited on the outside of the otolith. Trace elements from the water become embedded in the layers, and ecologists can read these chemical ‘signatures’ to reconstruct the life history of a fish.” Otoliths contain rings – similar to tree rings – that mark the passage of the seasons. Scientists can sample the material between the rings to tell where a fish was living during that particular season.

The walleye is the Ohio state fish, and it is prized by commercial fisheries, recreational anglers, and seafood lovers. It can be found all over the Great Lakes, but those that live in Lake Erie tend to spawn in either the Sandusky or Maumee – two tributaries some 35 miles apart on the southwest lake shore. Wildlife officials regularly sample the populations to set size and number limits on how many fish can be caught each season.

Walleye appearance varies from Great Lake to Great Lake, but within any one lake, the fish look very similar, regardless of where they hatched. So ecologists have to use other means to identify a fish's river of origin.

Analyzing otoliths is a technique that has gained acceptance over the last decade. Mangel Pflugeisen developed a statistical method that will help ecologists make the most of the limited information they can get.

She explained how her results could apply to fishery management. “Almost no walleye stray from other sites to spawn at the Maumee,” she said. “So if the Maumee is ever overfished, it is unlikely to recover, since fish won't be coming in from other sites to replenish the population. However, since so many fish from other sites stray to the Sandusky to spawn, the Sandusky is less vulnerable to overfishing. Officials would have a little more flexibility in the management of that river.”

Her advisor, Calder, explained the larger significance of Mangel Plugeisen's research. “While this research was motivated by the need to better understand particular Lake Erie walleye populations, the techniques in Bethann's thesis are general enough to be directly applicable in studies of other fish species in different regions of the world.”

Mangel Pflugeisen decided to pursue the project after taking an aquatic ecology course from Elizabeth Marschall, associate professor of evolution, ecology, and organismal biology at Ohio State. Marschall provided Lake Erie walleye data collected by one of her former graduate students, Jennell Bigrigg, who just earned her doctorate in veterinary medicine. Bigrigg harvested nearly 250 walleye from the Sandusky and Maumee Rivers over three spawning seasons during the springs of 2003, 2004, and 2005. She removed a tiny ear bone, known as an otolith, from each fish, and measured the chemical elements contained in it. Mangel Pflugeisen compared the amounts two key elements, strontium and calcium, at the core of each otolith – the part of the bone that grew just after the fish hatched.



Cross-section of a walleye ear bone, or otolith, showing growth rings.

Bedrock beneath the Sandusky contains more strontium than bedrock beneath the Maumee. Yet both sites contain roughly equal amounts of calcium. So, she reasoned, fish hatched in the Sandusky should have absorbed much more strontium from the water during their early life, and stored much higher concentrations of strontium in their otoliths from that time. Once she isolated a unique chemical signature for the two rivers, she used a Bayesian hierarchical mixture model to analyze the data. The model had to account for the uncertainty in the ratio of elements in the otoliths and in the water of both rivers at the same time.

The analysis suggested that about 92 percent of the fish in the Maumee also hatched in the Maumee, with a very small percentage originating at the Sandusky. At the Sandusky, however, only about 66 percent of the fish that caught were returned – that is, had been hatched in the Sandusky – and about 30 percent originate at the Maumee.

The results confirmed Marschall's suspicion: the Maumee fish are straying from the Sandusky to spawn, but not vice versa. "Dr. Marschall already had strong reason to believe that's what was happening, so I was not surprised by the results," Mangel Pflugeisen said. "But it was really neat to be able to back up her strong, ecologically-based sense of what was going on with a statistical analysis that yielded the same general trend, while also giving numerical estimates." ♦

## Dancing with the Stats

*Based on an article that appeared in the 2010 Issue of the College of Biological, Mathematical, and Physical Sciences' newsletter, Synergy, by Sandi Rutkowski*

So how does a professor of statistics who has just won the top honor in his field (the R.A. Fisher Lectureship) get involved with a dancer and choreographer known for revolutionizing classical ballet?

Once you talk to Noel Cressie, you realize it's easy to make that leap.

Cressie, the founder and director of Ohio State's Program in Spatial Statistics and Environmental Statistics (SSES), is a born collaborator. Cressie has developed new statistical methods for studying everything from the growth of the ozone hole and the dynamics of flu epidemics to Greenland glaciers' flow and the health of trees.

It was inevitable that Cressie would jump at the chance to tackle the challenges presented by "Synchronous Objects for One Flat Thing, reproduced," by William Forsythe, a web project developed at Ohio State by a team from the Department of Dance, the Advanced Computing Center for the Arts and Design (ACCAD), and Forsythe himself.

With Forsythe's ensemble dance, "One Flat Thing, reproduced," as a starting point, the idea was to dissect the structures of the dance while creating objects to enhance and reveal deeper meanings and connections. This required the creativity and expertise of researchers and students from such diverse disciplines as computer science, dance, design, philosophy, geography, statistics, and architecture.

When Cressie saw some of the objects in progress at an ACCAD Open House in 2008, he had an "aha" moment. As a statistician interested in spatio-temporal modeling, Cressie knew he had something to contribute.

"I knew that I wanted to create an object that was not only scientific but artistic as well—within its genre," Cressie told me. "In science, there is a tension between being correct and artistic. I wanted to move out of the publication constraints of more typical statistical projects."

The source video of Forsythe's dance piece has been quantified into cues, movement material, themes and improvisations, dances, stage locations, and times, and had been transfigured into 17-dimensional vectors indexed by

space and time.

To make this work, Cressie went back to the trees—way back to a spatial statistical project working with forest ecologists in the mid 1990s. As part of that project, his team had come up with a way to visualize forest health using a spatial dataset collected at monitoring sites spread throughout New England, linking regression plots with spatial maps.

"Then by 'painting' or 'brushing' points of interest on a regression plot, we could see where those monitoring sites were located on the map," Cressie explained. "The dance data were more complex, had many more variables, and time added another dimension, but I felt that I could apply the same principles—conditioning first, which is the brushing—and then looking at how the multivariate, spatial, and temporal dependencies change with different brush strokes."

"Using principles of statistical graphics, I tried to introduce dynamics and movement to show comparison between dancers' cueing activity and comparison between different themes."

Cressie said this was an exhilarating challenge. "As a scientist, I've always believed that science can be artistic. Now I'm working with artists who believe art can be scientific."

"I wanted our object to be stunning in its own way, even as a prototype. I also wanted it to be useful to Bill (Forsythe) to inform him of the consequences of decisions he had made when he choreographed the dance. There is something illuminating and liberating about the spotlight that data and its statistical analysis can shine on things felt so intuitively." ♦



Dr. Noel Cressie, Director of OSU Spatial Statistics and Environmental Statistics Program

## Candace Berrett

**W**hen I started in the Statistics program at Ohio State, it was clear that the students came with different expectations. To be honest, though, I was still trying to figure out my own. In the summer of 2005, I moved across the country to a state I had never been to before, with this vague idea of earning a PhD. Ohio State turned out to be the perfect place for me. From the eager-to-help professors and variety of courses, to the many opportunities to teach and perform research, I found the direction I wanted to head.

In my first year at Ohio State, I had a University Fellowship, which released me from teaching and research duties so that I was able to take more classes. Among these classes was one that introduced me to my area of research in spatial and environmental statistics, as well as to my advisor, Dr. Kate Calder. I soon started working as a research assistant for her and Dr. Tao Shi on the FLAMES (Fire-Land-Atmosphere Modeling and Evaluation for Southeast Asia) Project. This project gave me valuable experience in collaborative research as well as a great foundation in statistical research as I began my own dissertation work.

Dr. Calder, along with the department, encouraged and provided opportunities for me to attend many conferences to present work from my various projects. Doing so broadened my statistical knowledge and experience by allowing me to meet researchers from all over who had a variety of research backgrounds. It was exciting to see what interesting projects others were working on and to get their feedback on my own work. Although I didn't expect it, these conferences were a valuable part of my Ohio State experience.

Another aspect of my experience at Ohio State that I really appreciated was the students. While I had no control over who the other students in my classes would be, I found that Ohio State has some of the best. I enjoyed getting to know them and working with them to succeed in our classes and on our exams. I made many friends that I look forward to seeing at conferences and working with in the future.

Currently, I am an Assistant Professor in the Department of Statistics at my undergraduate university, Brigham Young University (BYU). My experience at Ohio State has proven to be valuable in helping me get started on my next climb here at BYU. To all the professors, staff, and fellow students at Ohio State: Thank You! ❖



chance to learn from our outstanding faculty, alongside very hardworking classmates who push each other very hard. Our Department fosters an atmosphere of collaboration, rather than competition, among its graduate students. I believe this helps us grow together personally and intellectually as young adults. I have had some of the best times of my life with my friends and fellow graduate students, both inside and outside of the classroom. And let's not forget our hard-working staff who do so much to keep it all running smoothly!

Not only does our Department continue to offer a world-class education across a broad swath of classical and modern statistics, but I believe it also does a great job of preparing students for success in all fields of employment, from academia to industry, by teaching them to think very critically about data and the modeling process. I, for one, am a very grateful beneficiary of this aspect of an Ohio State education.

I remember when I first arrived in Cockins Hall, in June 2004. My interests at the time were broad and varied, and ranged from probability theory to real analysis. I also specifically remember sitting in Dr. Stasny's office the first time I met her, and being casually dismissive of survey sampling. (She was not amused.) Six years on, I know how hard it is to extract clear-cut answers from massive amounts of messy data. It's one of the most exciting parts of my job!

I can't conclude without giving special thanks to my co-advisers, Dr. Stasny and Dr. Wolfe, for their mentorship, wit, and patience. I learned so much from them, and I treasure my years as a student in our Department. If given a chance, I would do it all over again. ❖

## Emily L. Kang

**I** was born in the Province of Hunan, which is the hometown of Chairman Mao and one of the places in China famous for spicy food. My dad is a professor in the College of Engineering at Hunan University, while my mom prefers literature and works in the library there. Unlike them, compared to engineering and literature, I like sciences better, and particularly I enjoy playing with numbers. I chose Applied Mathematics as my undergraduate major at Tianjin University and later enrolled in the dual-degree program in Finance at Nankai University. After taking courses in both majors, I found that although I appreciate the beauty of all the theorems in algebra and geometry very much, I prefer to solve problems in contexts with more direct impacts on the real world. On the other hand, I am not that interested in stocks and shares (it might not be easy for me to get rich), and it turned out that my favorite course in the program in Finance was Linear Regression. So when I decided to study abroad, I chose Statistics to be my graduate major and also the field of my future career.

I started my graduate studies at Ohio State in September 2004. I was fortunate to receive a University Fellowship for my first year and was able to focus on the coursework. In the beginning of my second year, I started reading courses with Dr. Cressie. I still remember the first paper Dr. Cressie



## Nader Gemayel

**A**s I look back upon the past six years, mere hours after Ohio State's historic seventh straight football win over That School Up North, I am reminded of what a wonderful thing it is to be a Buckeye. Time flies when you're at Ohio State!

This has been a great stretch for our Department as well. We have a lot of accomplishments to be proud of, and the future is even more promising. I am grateful for having had the



assigned me to read, “The Origins of Kriging.” Since then, I knew the word “kriging” and immersed myself in the book, “Statistics for Spatial Data.” I was fascinated with the power of spatial statistics in the real world – it is so rare that data are collected without “spatial” information, and it is so important that we not ignore this kind of information and the resulting dependence. After I passed the second qualifying exam, I chose Dr. Cressie as my advisor and continued my research on modeling spatial processes and spatio-temporal processes, with applications in environmental sciences and climate models.

During my last three years in the department, Dr. Cressie supported me as a research assistant. I worked on projects directly linked to my dissertation and also other projects associated with the Program of Spatial Statistics and Environmental Statistics (SSES), simultaneously. Dissertation research can be challenging but, believe me, it is always rewarding. I can’t describe the sense of accomplishment I felt when I saw my bound dissertation (with the cover in scarlet!), when I won the Whitney Award (shared with Dr. Jingyuan Yang) for Ph.D. research, and when I saw my papers published. Achieving the Ph.D. at Ohio State Statistics was an amazing experience for me. I sincerely appreciate all the support I have received from the department. Especially, I would like to express my gratitude to my advisor, Dr. Cressie, for guiding me in the proper direction and especially for his encouragement and patience. Everything he pointed out for my improvement has been so important and beneficial for my research and work, especially after I graduated and started as a postdoctoral fellow at the Statistical and Applied Mathematical Sciences Institute (SAMSI).

After graduating with my Ph.D. in Statistics in December 2009, I still got help from people in the department. It was so kind of Dr. Santner to share his notes with me when I was preparing to teach my first course at North Carolina State University this summer. Currently, I am applying for positions in academia. Once again, I have received tremendous support and advice on my job search from faculty in the department such as Dr. Cressie, Dr. Wolfe, and Dr. Shi. I am so thankful to them for their help and encouragement along the way.

It has been about a year since I left Columbus for North Carolina for my current position at SAMSI. I come back to Columbus on a regular basis, collaborating on research and meeting friends. OSU Statistics has become my second home. As an OSU-trained statistician, I look forward to more challenges at a new job and I sincerely intend to represent the department well in the future! ♦

## Pete Mazzeo

I returned to school as a graduate student in statistics in an effort to teach at a higher level. I taught math at Douglas High School in Minden, Nevada for three years, and though I enjoyed the profession, my interest in math and its applications was still growing. I loved working with students, but my appetite for



applied math and problem solving was not satisfied by repeatedly teaching algebra and geometry. I realized after observing other teachers, participating in workshops, and lots of discussion, that statistics is what I wanted to teach. Teachers are encouraged and sometimes required to get masters degrees, and I decided that I would buck the trend of the online masters degree in education and would earn a graduate degree in my content area the old fashioned way!

In June 2008, I packed up and drove across the country to start graduate school at OSU six days later! The first year of the program was an overwhelming experience to say the least! I moved from one side of the country to the other, from a comfortable paycheck to a graduate stipend, and from teacher to student. It was humbling, demanding, and incredibly interesting. I was excited by the content of my courses, and amazed at what was possible with statistics. Early in this first year I realized that I wanted to experience statistics in the workplace “to make me a better teacher.” I thought it would be great to be able to teach with a true understanding of how the methods were used in industry. This plan motivated me to apply for several internships across the country.

In the summer of 2009 I moved to Richmond, Virginia to work as an intern at Capital One. My job for the summer was to build an attrition model for customers in the bank – my first real model-building project on big, messy, and real data! This was one of the most influential experiences in my graduate school career. I enjoyed my work, the atmosphere, and the excellent development opportunity available at Capital One. I was surrounded every day with thoughtful, intelligent people who have a passion for problem solving. I never thought of myself as the “office type” and was caught off guard that I felt so comfortable at work that summer. At the end of the internship I was offered and accepted a position in the company that would be held for me until graduation a year later.

Knowing what I was going to do helped me to focus on my studies in my second year. I returned to school in the fall excited about my classes and my learning. I took what turned out to be my favorite class of the program that winter, Applied Bayesian Statistics, and worked under Dr. Rumsey as an RA for Statistics 133 Honors in the spring which was a great fit for my inner teacher!

I graduated from OSU in June of 2010 and began work at Capital One in July. I have been with the company now for just about 6 months and I am truly happy with what I am doing. I am currently participating in the company’s Analyst Development Program, which combines training, career development, networking, and a little bit of fun. I strongly encourage any student who is willing and able to apply for internships and explore career possibilities as soon as you can. You may be surprised!

I would like to thank the department and faculty for their support during the program, and especially to Kate Calder and Elizabeth Stasny as they came together to save my graduation from the clutches of appendicitis! ♦

## Bethann Mangel Plugeisen

I was working on a Masters degree in Education at the University of Washington when I took an elective statistics class. The class was taught as a non-math based statistics class designed for educational researchers, but for me it was love at first distribution! After much conversation with statisticians and personal advisers, I decided to make a career change from the world of Education to the world of Statistics. Upon completing my M.Ed., I immediately began coursework in mathematics at the local community college and the University of Washington to prepare for applying to graduate programs in statistics.

My first visit to Ohio was for Graduate Information Day and I knew quickly that this was the right department for me. The faculty was diverse and dedicated to the students, and I was attracted to the Masters with a thesis option. During my first meeting with Dr. Stasny I told her I wanted to leave Ohio State prepared to work at the National Oceanic and Atmospheric Administration (NOAA), the Fred Hutchinson Cancer Research Center (FHCRC), or to teach. The thesis option promised experience with both research and writing, two important skills for a Masters level statistician at either NOAA or FHCRC.

The Ohio State Department of Statistics proved to be a fantastic department, full of challenging courses, committed faculty, and exciting opportunities. The statistical theory classes were rigorous and intense, without a doubt, but were taught by professors who made themselves readily available. The department fosters a community of collaboration, so working with classmates was common and made learning the material a group effort that brought together our different strengths for the benefit of the group. In addition to the difficult theory classes, I was able to take elective classes that spoke to my interests and career goals, such as Applied Bayesian Analysis, Generalized Linear Models, and Statistical Genetics. These classes were diverse and exhilarating, and I have relied on each of them since graduating and starting my current job.

For my final project in Professor Kate Calder's Applied Bayesian Analysis class I contacted an ecologist whose class I had taken in the fall to see if she had data that might be interesting to analyze. Indeed, she had a fascinating problem about the behavior of fish in Lake Erie, along with data that they hoped would help them understand how often Lake Erie Walleye returned to the place they were born when they were ready to reproduce. (See the article "Ear Bones Reveal Spawning Secrets of Lake Erie Walleye" on page 4 of this newsletter.) My final project dipped into the data and the problem, but I wanted more. Kate agreed to act as my advisor, and with her support I wrote my thesis on this topic.

During the summer between my first and second years of school I had the opportunity to do an internship at the Fred Hutchinson Cancer Research Center with Dr. Pei Wang, a statistician interested in genetics and cancer. I worked collaboratively with Pei's small group on the problem of determining the best method of analysis for complex, genome-wide association (GWAS) data. It was thrilling to be immersed in a



research environment, particularly since Pei's group worked in collaboration with a genetics group that performed lab experiments to generate some of the data that we would then analyze. The internship gave me great exposure to the world of statistical research and collaboration between statisticians and scientists, and I loved it.

Another opportunity that was afforded to me at OSU was the chance to teach. I worked as a TA for Statistics 135 during my first year of school. I was interested in Statistics 135 because I wanted to work with students who generally did not consider themselves to be mathematically inclined or focused. I enjoyed TAing, and in my second year I was one of the Statistics 135 lecturers. In addition to my interest in research, I am interested in the possibility of teaching math or statistics at a community college. I really loved lecturing; there is nothing quite like the thrill of seeing students understand a concept or succeed in a course they thought would be boring or too difficult.

I graduated from the Ohio State Department of Statistics in June 2010 and in July I started working with a group doing research on colon cancer at the Fred Hutchinson Cancer Research Center in Seattle. In my few months at FHCRC I have often called upon my coursework and experiences at OSU. Our department prepared me for life as a statistician in a competitive, dynamic research environment. I enjoy my job a great deal, and I am grateful to the faculty in our department and my fellow classmates for having provided me with a challenging and sustaining education. ♦

## Jingyuan (Summer) Yang

Where should the story begin? Maybe with this sentence from the personal statement I wrote in autumn 2004 when applying to graduate schools: "Fascinated by both mathematics and biology, I have great interest in biostatistics as an interdisciplinary field." Today, I still believe that biostatistics is the best major on Earth, a field that combines my interests and strengths perfectly. And the luckiest thing is that I received the Ph.D. in Biostatistics from such a great department.

I vividly remember the first time I met Dr. Stasny and Dr. Wolfe in the hallway of the third floor on the second day after I moved to the U.S. from China. If you knew me at that time, you could easily smell my green. The professors' warm welcome to a new student and their big smiles eased a lot of my nervousness. Since then, I met more and more faculty members in classes and other circumstances, all of whom are extremely knowledgeable and accessible. Beginning in summer 2007, I started to work on statistical genetics with my adviser Prof. Shili Lin, who guided me through my dissertation research with tremendous patience. She encouraged me to present my research at conferences and cheered me up when I had low morale. She may look a little serious sometimes, but she is a



brilliant scientist and superb mentor. I think the faculty in this department make our graduate programs outstanding. Don't be shy to ask them questions and try to learn as much as you can from these smart people.

Besides coursework, research, and the professors, how can I forget about all the tailgating for Buckeye games, pot-lucks among international students, holiday parties...? In this "work hard, play hard" department, fellow students are fun. Make sure you hang out with some of them, not just for brainstorming homework solutions. To make your and other students' graduate school life even more colorful, run in the election to be a co-president of our graduate student organization, which will entitle the winner to be the CMOOL editor, faculty teaching award ballot runner, fun activity organizer, and perhaps more if you name it.

In the last two years in graduate school, I directed the Statistics in the Community group at the Ohio State University (STATCOM@OSU), which is a volunteer organization staffed by graduate students in our department, aiming to provide professional statistical consulting service to non-profit organizations in the community free of charge. It was exciting to meet the clients and see how statistics could help them. If you

want to practice what you have learned about statistics and solve some real-world problems, join STATCOM@OSU and get your hands on a project, go meet the clients and understand their needs, make some nice deliverables and interpret them well; you will surely get more from these experiences than from the classroom alone.

I've been working as a Biostatistics Manager in a pharmaceutical company since June. Shoot me a message to [jingyuan@amgen.com](mailto:jingyuan@amgen.com) if you are curious about what biostatisticians do in the pharmaceutical industry. I am really grateful to the department, since beyond learning biostatistics, I also made friends with great people, took advantage of many opportunities created by the department, and became more confident and certain about myself. The past five years here made me who I am now and will be the cornerstone of my career in the future.

Enjoy and make the most of your time in this department, since you will miss it after you graduate. ❖

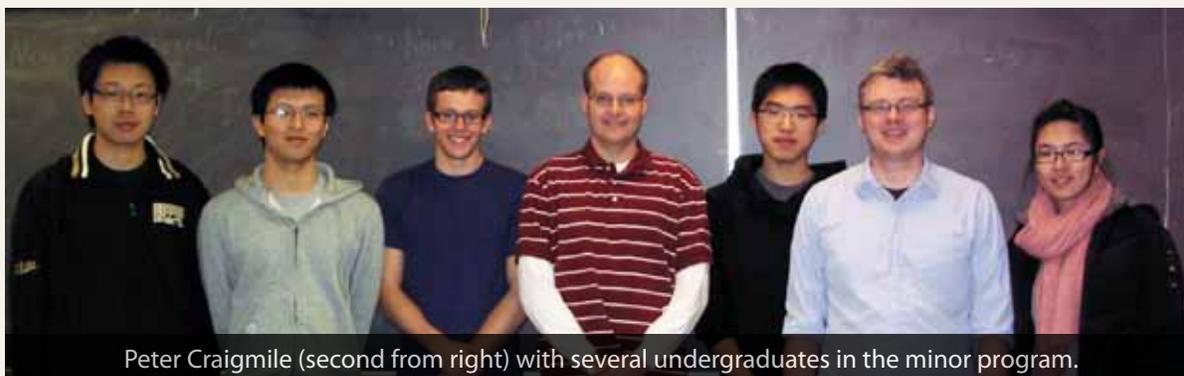
## ***Undergraduate Statistics Minor Gaining Momentum*** by Bill Notz

**T**he Department of Statistics does not offer an undergraduate major. Across the United States and here at OSU, Statistics has traditionally been a graduate discipline. Thus, we have focused on our (very successful) graduate program. However, training in statistics enhances the value of any undergraduate degree. To improve our service to undergraduates, we have developed an undergraduate minor program in statistics. The minor program requires students to take Statistics 420 and 421 (an undergraduate probability and mathematical statistics sequence), Statistics 529 and 530 (an applied statistics sequence), and at least 4 hours of more advanced coursework. For those who are curious, check out the undergraduate minor web site at [go.osu.edu/DyP](http://go.osu.edu/DyP).

Our undergraduate minor program has steadily gained momentum. Professor Mike Fligner advertised the minor to several departments, and it is proving popular with under-

graduate actuarial science, economics, and business majors. Our next step is to advertise the minor to engineering and biology majors. This quarter alone (my first quarter supervising the minor) we have had 26 students sign up for the minor. Almost every day I get an enquiry about the minor. Students who talk to me are both interested in statistics (who would have thought!) and understand the value it adds to the undergraduate degree. If the current trend continues, our undergraduate minor may have more students than our graduate program.

The growth of the undergraduate minor has created an increasing demand for Statistics 420, 421, 528, 529, and 530 as well as some of our 600-level courses. To meet the demand we plan to offer more and more sections of these courses. And if the demand continues, who knows – will we need to develop undergraduate major in statistics? ❖



Peter Craigmile (second from right) with several undergraduates in the minor program.



Elizabeth A. Stasny

## This Year's Ph.D. Graduates

**W**e are proud to have another excellent group of Statistics and Biostatistics Ph.D. graduates this year. Below are the titles of these graduates' dissertations and the positions they have accepted:

### **Ph.D. in Biostatistics:**

**Namhee Kim** – “A semiparametric statistical approach to functional MRI data,” Research Fellow, Gruss Magnetic Resonance Research Center, Albert Einstein College of Medicine

**Jingyuan (Summer) Yang** – “Likelihood approach for detecting imprinting and maternal effects in family-based association studies,” Biostatistics Manager, Amgen Inc.

### **Ph.D. in Statistics:**

**Danel Draguljic** – “Screening in physical and computer experiments,” Statistician III, Battelle Memorial Institute

**Nader Gemayel** – “Bayesian nonparametric models for ranked set sampling,” Senior Marketing Analyst, JP Morgan Chase

**Lori Hoffman** – “Disease Gene Mapping Under The Coalescent Model,” Statistician for STATKING Consulting, INC.

**Yoonsuh Jung** – “Regularization of case specific parameters: A new approach for improving robustness and/or efficiency of statistical methods,” Postdoctoral Fellow, Department of Biostatistics, University of Texas MD Anderson Cancer Center

**Lei (Emily) Kang** – “Reduced-dimension hierarchical statistical models for spatial and spatio-temporal data,” Postdoctoral Fellow, Statistical and Applied Mathematical Sciences Institute (SAMSI) and NCSU Department of Mathematics

**Ju Hee Lee** – “Robust statistical modeling through nonparametric Bayesian methods,” Postdoctoral Fellow, Bioinformatics and Computational Biology, University of Texas MD Anderson Cancer Center

**Yi Liu** – “Testing for efficacy for primary and secondary endpoints by partitioning decision paths,” Senior Biostatistician, Millennium Pharmaceuticals, Inc.



Dr. Nader Gemayel on his graduation day!

**Sharada Modur** – “Missing data methods for clustered longitudinal data,” Research Associate, Statistical Epidemiology Group, Dept of Epidemiology, Bloomberg School of Public Health, Johns Hopkins University

**Hyejung Moon** – “Design and analysis of computer experiments for screening input variables,” Statistician, Bank of Korea

**Youlan Rao** – “Statistical analysis of microarray experiments in pharmacogenomics,” Senior Biostatistician, Millennium Pharmaceuticals, Inc.

**Jared Schuetter** – “Cairn detection in southern Arabia using a supervised automatic detection algorithm and multiple sample data spectroscopic clustering,” Statistician III, Battelle Memorial Institute

**Li Yu** – “Tau-path test: A nonparametric test for testing unspecified subpopulation monotone association,” Senior Statistician, MedImmune, LLC

### **Our Winning Students**

**Hang Kim, Matthias Katzfuß, and Mallikarjuna Rao Rettiganti** received the Edward G. Mayers Travel Fellowship from the Division of Natural and Mathematical Science, The Ohio State University.

**Matthias Katzfuß** was a recipient of the Edward J. Ray Travel Award for Scholarship and Service from the OSU Council of Graduate Students.

**Michael Sonksen** and **Peter Sprangers** both won a 2010 OSU Summer Survey Fellowship Award to conduct their own original survey research. Michael's research proposal was titled “Development of Model Diagnostics for Marketing Models of Survey Data” and Peter's was titled “Program Evaluation Using Propensity Score Adjustment in Complex Survey Designs.”

### **Internships**

Once again our graduate students found a variety of exciting summer (and other quarter) internships this year.

**Matthias Katzfuß** spent the summer in Perth, Australia, working for the CSIRO in the Division of Mathematics, Informatics and Statistics.

**Mallikarjuna Rao Rettiganti** was a biostatistics intern at the Arkansas Children's Hospital Research Institute in Little Rock, AR.

**Leanne Sanders** participated in a summer internship at the National Institutes of Health – NICHD in Washington, DC.

**Aritra Sengupta** did an internship in Retail Financial Services at JP Morgan Chase (Polaris Branch).

### **Student Presentations**

The Department was once again well represented at the 2011 Joint Statistical Meetings in Vancouver, BC. The following is a list of the students who presented their research at the meeting and the titles of their talks:

**Candace Berrett**<sup>†</sup>, joint with C. Calder: “Data Augmentation Strategies for the Bayesian Spatial Probit Regression Model”

**Jenny Brynjarsdottir**, joint with M. Berliner: “Dimension-Reduced Approach to Modeling of Two Interdependent Space-Time Processes”

**William Darnieder**<sup>†</sup>, joint with S. MacEachern: “Adjustment for Data-Based Prior Selection”

**Hang Joon Kim**<sup>†</sup>, joint with S. MacEachern: “Hierarchical Bayes Conjoint Choice Analysis via the Approximate Dependent Poisson Race Model”

**Ju Hee Lee**, joint with S. MacEachern: “Local-Mass Preserving Prior Distributions for Nonparametric Bayesian Models”

**Cong Liu**<sup>†</sup>, joint with T. Shi and Y. Lee: “A Comparative Study of Variable Screening Methods: Univariate vs. Multivariate Screening”

**Bethann Mangel Pflugeisen**, joint with C. Calder and E. Marschall (EEOB, OSU): “Analysis of Otolith Microchemistry Using Bayesian Hierarchical Mixture Models”

**Mallikarjuna Rettiganti**<sup>†</sup>, joint with H. Nagaraja: “Power Analyses for Negative Binomial Models with Application to Multiple Sclerosis Clinical Trials”

**Aritra Sengupta**<sup>†</sup>, joint with N. Cressie: “Generalized Linear Spatial Random Effects Model”

**Michael Sonksen**<sup>†</sup>, joint with M. Peruggia: “Reference Priors for Constrained Poisson Models”

**Joshua Svenson**<sup>†</sup>, joint with T. Santner: “Sequential Design of Computer Experiments for Multiobjective Optimization”

**Kazuki Uematsu**<sup>†</sup>, joint with Y. Lee: “Statistical Analysis of Bipartite and Multipartite Ranking by Convex Risk Minimization”

**Rui Wang**<sup>†</sup>, joint with Y. Lee: “Comparison of the Ef-



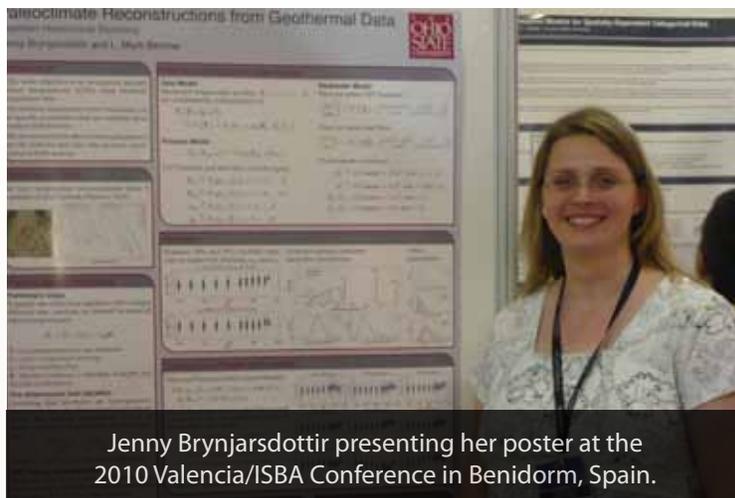
Statistics graduate students taking a time out from their studies to play basketball!

iciency of Classification Methods”

**Lili Zhuang**<sup>†</sup>, joint with N. Cressie: “Spatio-Temporal Modeling of Sudden Infant Death Syndrome Data”

In addition to presenting at JSM, several of our students traveled to other conferences and workshops around the world.

**Candace Berrett** (“Data Augmentation Algorithms for the Bayesian Spatial Probit Regression Model”) and **Matthias Katzfuß** (“Comparison of Gap-Filling Methods For Massive Geostatistical Data Sets: Fixed Rank Kriging and Fast Thin Plate Splines”) presented posters at the Opening Workshop of the Statistical and Applied Mathematical Sciences Insti-



Jenny Brynjarsdottir presenting her poster at the 2010 Valencia/ISBA Conference in Benidorm, Spain.

tute’s (SAMSI) 2009-10 Program on Space-Time Analysis for Environmental Mapping, Epidemiology and Climate Change in September 2009. Matthias also presented a poster titled “Spatio-Temporal Analysis of Global CO<sub>2</sub> Data” at the SAMSI Climate Change Workshop in February 2010.

**Matthias Katzfuß**<sup>†</sup> attended the Second Joint Statistical Meeting of the Deutsche Arbeitsgemeinschaft Statistik (DAG-Stat2010) in Dortmund, Germany in March 2010. He gave a poster presentation titled “Maximum Likelihood Estimation of Parameters in the Spatio-Temporal Mixed Effects Model.”

**Michael Sonksen** presented a poster titled “Artificial Autoregressive Diagnostics of Lack-of-Fit for Bayesian Hierarchical Normal Models” at the Frontiers of Statistical Decision Making and Bayesian Analysis Conference, held in honor of James O. Berger, in San Antonio, TX, in March 2010.

**Jingyuan (Summer) Yang**<sup>†</sup> gave a talk titled “A Likelihood Approach for Detection of Imprinting and Maternal Effects Using General Pedigree Data” at the Eastern North American Region (ENAR) Meeting of the International Biometric Society in New Orleans, LA, in March 2010.

**Candace Berrett** and **Jenny Brynjarsdottir**<sup>†</sup> gave poster presentations at the International Society for Bayesian Analysis (ISBA) World Meeting, held in conjunction with the Ninth Valencia International Meeting on Bayesian Statistics, Benidorm, Spain, in June 2010. Their posters were titled “Bayesian Probit Regression Models for Spatially-Dependent Categorical Data” and “Bayesian Hierarchical Modeling for Paleoclimate Reconstruction from Geothermal Data,” respectively.

**Yushi Liu**<sup>†</sup> presented a contributed talk titled “The Temporal Profile Study in Female Rainbow Trout under Normal and Compressed Reproductive Cycle” at the International Chinese Statistical Association’s 2010 Applied Statistics Symposium in Indianapolis, IN, in June 2010. ♦

<sup>†</sup> These Students Received the Gary Koch Student Travel Award to help support their travel to present their research.

## Thomas Marker

*Systems Developer*

Here's my story. I suppose it could be more exciting if someone else told it, since I don't like to write about myself. I started as an undergraduate at Ohio State in 1995, as a wide-eyed and ambitious Psychology major. Before college, I had a strong interest in computers having run my own Bulletin Board System (BBS) which is what computer geeks did before the internet had graphics.

Quickly, for the sake of my bank account, I found a job working on West Campus with the Eisenhower National Clearinghouse for Math and Science Education. I answered phone calls from people around the country and tried troubleshooting their modem problems. In between calls, I taught myself HTML and learned about the Solaris operating system. Eventually, my student job evolved into a staff position, and I've been working for Ohio State ever since.

Most recently, I was responsible for audiovisual support for the College of Medicine and worked many events at the Medical Center. Anything that needed a computer, projector, or microphone, we were there! In addition, we would also record meetings, lectures, press conferences and more. This work led me to apply for my current position in Statistics where I provide computer support, assist with learning technology, and maintain the department web site.

Outside of work, I assume my secret identity as a martial arts instructor! In 1998, I began training in martial arts classes at Ohio State and have been doing so since that time. I train in a Korean martial art called Tang Soo Do and have earned my 3rd degree black belt. When I'm not at work, I'm often teaching classes along with my wife who is also a black belt. We teach classes at our local Y for kids as young as 3 as well as adults. We both enjoy the positive feeling associated with sharing our passion and interest with others, as well as the look on someone's face when we show them they are capable of doing things they wouldn't have ever imagined themselves doing.

My other time-consuming interest is photography, and I try to take a camera with me everywhere I go. Among my favorite subjects are OSU landscapes, close-ups of architectural details, martial artists and pets. Pet photography is quickly becoming one of my favorite hobbies. Dogs and cats are truly enjoyable to photograph, and are usually a lot less tense than humans which means the pictures look a lot better. Cats don't have hang-ups about how their fur looks today, or whether that angle makes them look fat. Also, dogs rarely read their model release.

There's no other free time to speak of, really. I enjoy cook-



ing and trying new recipes and I try to get outside and enjoy nature when I can. Sometimes "enjoying nature" can be interpreted as "napping on my hammock" and I'm OK with that. ❖

## Steve Naber

*SCS Senior Consulting Research Statistician*

I am delighted to be back in the Department of Statistics as a Senior Consulting Research Statistician with the Statistical Consulting Service. In this position, I am responsible for providing statistical design and analysis services to Ohio State faculty and staff and to clients from external businesses who request our assistance. I have also been searching for new consulting opportunities and writing proposals to secure those opportunities for the SCS. When needed, I also assist student consultants and provide guest lecture services for consulting courses. Some of the projects on which I've worked so far include several surveys for the OSU College of Nursing, the Ohio Child Care Market Rate Survey, and a sampling design for public housing repair cost evaluation.

Prior to my return to the SCS in July 2010, I was employed at Battelle in Columbus. At Battelle, I worked on a large variety of projects, primarily in the area of environmental research, but also in the areas of transportation research, credibility assessment, and medical device use studies. I was the department expert on the design and analysis of environmental studies, particularly in the areas of soil, groundwater, and sediment research. Some of my recent projects included developing sample designs for EPA's Great Lakes National Program Office to perform pre-dredging characterization of river sediment, developing a sample design to assess source of perchlorate in the soil in an area surrounding an aerial bombing range target, and developing and performing analyses to assess temporal and spatial trends in groundwater contamination at a former naval air station. Probably my favorite project was to design a sampling and analysis plan for a study to evaluate long-term trends in post-remediation lead-shot replenishment in intertidal sediments at a former gun club. As part of this study, I was asked to assist in the initial sampling event so

that I could identify and address any sampling issues that might arise during sampling. Somewhere, there are still pictures of me in knee-high rubber boots digging in the sand with an oversized kitchen spoon.

When I completed my previous stay in the Department in 1993, I not only got a diploma, but also I also found my future wife, Marcie. About the time we got engaged, she left the department for the College



of Mathematical and Physical Sciences. Recently, she was incorporated into the College of Arts and Sciences Administrative Services staff where she is a Human Resources Manager. Our older daughter Brittany recently completed Harvard Law School and is serving as administrative clerk for the Chief Judge of the US Court of Appeals First Circuit. Her husband is in medical school. Our younger daughter, Caitlin, will finish her bachelor's degree at Ohio State this spring (majoring in Classics) and plans to pursue a master's degree in library science. Her boyfriend is also completing a degree from OSU this spring, with a major in CSE and a minor in Statistics. Our family also includes a cat (Allegra) and two dogs: Myla, a beagle-border collie mix and Daisy, a beagle.

I fill my spare time pursuing several interests. I sing in a praise group at church, and occasionally pull out my French horn to play. After retiring from playing fastpitch softball and coaching for a couple years, I have now become an umpire for girls' softball. I have been judging Science Fairs at the local and state levels ever since I got started judging with the Department of Statistics 20 years ago. Marcie and I love to travel, particularly to Boston (to see our daughter) and the Central Coast of California. I am a big fan of the Blue Jackets. And I am one of the rarest of breeds – a fan of both Michigan (I was raised to be one) and the Buckeyes (by virtue of attending school here). ♦

### **Kelly VanDenBerge** *SCS Program Assistant*



**W**ell there really isn't much to tell about me. I am a pretty simple gal. I am a single mom of two wonderful and very active boys. Lucas is 13 and Parker is 9. We live in New Albany and have for the past 9 years. I grew up in Worthington and have lived in Tampa and Naples, Florida as well. I prefer the changing of the seasons to the warm climate...any

day! I love living in Ohio. There is so much to do here and my boys and I love the winter sports. We often head to Mad River Mountain for the evening and I ski while they snowboard. I told myself I was going to learn to snowboard this winter as well. Just have to convince my body that it's a good idea!

I don't really have too much free time nowadays. My boys are very active in our local youth hockey association. On any given weekend we can have up to 6 games between the two of them. Most of the time we stay around here in Columbus to play but our schedule this year so far has taken us to Athens, Newark, Troy and Oxford. We will be going to Detroit for a big tournament this February as well. I am the President and

Ice Scheduler for our hockey association and am responsible for over 300 hockey players and their parents. I love every minute of it. Our hockey parents are great and the friends that we have made over the years are priceless.

In the summer and spring we are also involved in lacrosse and lots of hockey camps. My boys get very excited when they go to the OSU camps. They seem to be very proud of attending those and can't wait to go every year.

Besides running my boys to hockey and lacrosse and skiing I am also trying to finish my BS in Psychology at the OSU Newark campus. I started my educational pursuit many moons ago at the University of Akron where I played softball and wanted to be a teacher. When I am finished, I hope to have my degree in Psychology.

My job here so far has been very interesting. I have met a lot of interesting people and look forward to many years here. I love being able to tell people that I work at OSU and am proud to be a Buckeye. ♦



Scene in front of Cockins Hall, home of the Department of Statistics.

## Conference Honoring Achievements of Michael Browne *by Kate Calder*

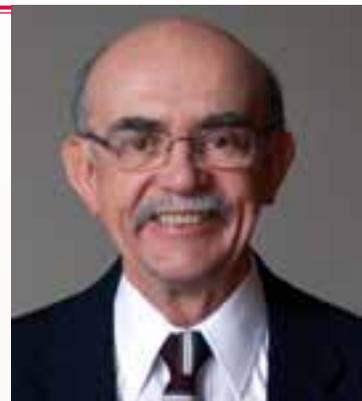
Ohio State's Departments of Psychology and Statistics, along with the Society of Multivariate Experimental Psychology and Scientific Software International, sponsored a conference celebrating the lifetime of scientific contributions of Michael Browne, Professor of Psychology and Statistics. The conference was held on September 9 and 10, 2010, in the US Bank Conference Theatre at the newly renovated Ohio Union.

The conference featured talks given by prominent scholars (including Professors Steve MacEachern and Peter Craigmile) in the field of the "Theory and Application of Latent Variable Models." The talks focused on work inspired by Professor Browne's research, and highlighted the breadth and depth of his research contributions. Many called attention to his vision and his ability to see the issues that would become important well before others did. The talks will be collected in a volume, to be published in 2011.

Attendees were treated to delightful tales from Michael's

younger days, including many by former colleagues and students. We heard of his days on a motorcycle, his love of country music, and, of course, his kindness and respect for others.

In addition to being honored at the conference in September, Michael was presented with the Lifetime Achievement Award in recognition of his contributions to Psychometrics at the 2010 Annual Meeting of the Psychometric Society. ♦



## Nonparametrics Conference at the Ohio State University *by Omer Ozturk and Joe Verducci*

The Department of Statistics hosted The Conference on Nonparametric Statistics and Statistical Learning, which took place at the The Blackwell Inn on the OSU main campus from May 19-22, 2010.



Members of the local organizing committee (L to R): Profs. Tao Shi, Steve MacEachern, Yoon Lee, Joe Verducci (chair), Omer Ozturk, and Xinyi Xu (Not pictured: Professor Doug Wolfe)

The conference committee assembled a stellar program. The Department provided support staff for the website and registration system, computer and technical support at the conference, and administrative support.

The conference was well attended with 198 participants from all over the world, from 18 different countries and 6 continents. The conference opened with the Rustagi Memorial Lecture presented by Gary Koch on Wednesday, May 18, 2010, followed by a reception in the newly renovated Campus Library Reading Room in Thompson Library. Main sessions started on Thursday May 19, 2010 and ended on Saturday, May 22, 2010.

The main goal of the conference was to bring together researchers in nonparametrics and statistical learning from academia, industry, and government in a stimulating atmosphere to discuss principles and methods that apply to both disciplines and to promote the exchange of ideas between them.

The conference featured plenary presentations by prominent scholars in the field including David Banks (Duke Uni-

versity), Michael Jordan (University of California, Berkeley), David Madigan (Columbia University), Peter Müller (The University of Texas M.D. Anderson Cancer Center), Ronald Randles (University of Florida), and Grace Wahba (University of Wisconsin, Madison).

The program covered areas such as distribution-free statistics, rank-based and robust statistics including data depth measures, Bayesian nonparametric methods, permutation-based methods, nonparametric regression and density estimation, multivariate statistics, data mining, and statistical learning. Program abstracts and presentation slides are available online at [conference.stat.osu.edu/nssl2010/abs\\_and\\_slides.html](http://conference.stat.osu.edu/nssl2010/abs_and_slides.html). Selected papers will be published in a special issue of Statistical Analysis and Data Mining, which is being guest edited by Yoon Lee.

The conference was sponsored by the Department of Statistics, the Ohio State University; the Chhotey Lal and Mohra Devi Rustagi Memorial Fund; the ASA Section on Statistical Learning and Data Mining; the National Science Foundation; and Nationwide Insurance Company. More information about the conference can be found on the conference web page at [conference.stat.osu.edu/nssl2010/](http://conference.stat.osu.edu/nssl2010/). ♦



Ph.D. alum Yonggang Yao (center) with other conference participants.

## OSU Alumni and Friends Breakfast Reception at JSM by Kate Calder

The First Annual OSU Alumni and Friends Breakfast Reception, held during the 2010 Joint Statistical Meetings (JSM), was big success! Approximately 50 alumni, current students, and faculty members gathered at the Fairmont Waterfront Hotel in Vancouver, BC for the event.

Congratulations to Jay Harrison (M.S. '90) and Yoonsuh Jung (Ph.D. '10), winners of the door prizes (OSU Statistics T-shirts)!

We look forward to continuing this new tradition at future meetings. Please join us this August in Miami, FL for the 2011 JSM breakfast. Details will be announced in the JSM Program and posted on the department website: [www.stat.osu.edu](http://www.stat.osu.edu). ❖



Youlan Rao (Ph.D. '09), Professor Jason Hsu,  
and Yonggang Yao (Ph.D. '08)



Kazuki Uematsu (current Ph.D. student)  
and Brian Millen (Ph.D '01)



Jeremy Christman (M.S. '08), Lori Hoffman (Ph.D. '10),  
and Deedra Nicholet (M.S. '08)



Lin Fei  
(Ph.D. '92)



Bonnie Shook-Sa  
(M.A.S. '08)



Jay Harrison (M.S. '90), Aritra Sengupta (current Ph.D. student),  
and Lili Zhuang (current Ph.D. student)

## OSU Brings M.A.S. Program to Taiwan

by Jason Hsu

In May 2010, National Taipei University (NTPU) and the Ohio State University signed an agreement through which NTPU students can obtain a NTPU Bachelor's degree in three years and an Ohio State Masters of Applied Statistics degree with an additional two years of study. The signing of this Agreement was largely facilitated by the connection between Prof. Jason Hsu (center) with his former student Hong-Long Wang (王鴻龍, Ph.D. '92, second left in the photo). Other alumni of our department in the photo are, from left to right: Tian-Tzer Jeng (鄭天澤, Ph.D. '87, National Chengchi University), Wen-Chang Soong (宋文昌, Ph.D. '89, National Taipei University), Shing-Her Juang (莊聲和, Ph.D. '86, Soochow University). This connection from the past, through the present, to benefit future students, is even deeper than it might first appear: the photo was taken in 2009 on National Taiwan Normal University campus, where Jason Hsu's mother was a professor for 15 years. ❖



## OSU Statistics on Facebook

These days, a social media presence plays a vital role to many organizations, and the Department of Statistics is no exception.

Overseen by the Communications Committee led by Dr. Tao Shi, The "Department of Statistics at The Ohio State University" is now a part of the Facebook community. All are welcome to "Like" our page and stay updated on upcoming events, announcements, news, pictures and more.

For more information, please visit our Facebook page: [facebook.com/osustat](https://www.facebook.com/osustat). ❖



## In Memoriam: Edward J. Dudewicz

(Based on the AMSTAT News obituary written by Zaven A. Karian, Denison University; and E.C. van der Meulen, K.U. Leuven.)

Edward J. Dudewicz, born on April 24, 1942, died on September 22, 2010 after a six-year battle with cancer.

Dr. Dudewicz was a former faculty member in the department, who also taught at Syracuse University, University of Rochester, University of Leuven, Belgium, and National University of Comahue, Argentina. At the time of his death, he was Professor Emeritus of Mathematics at Syracuse University, New York. He received a bachelors degree from the Massachusetts Institute of Technology in 1963, and a masters and Ph.D. degrees from Cornell University in 1966 and 1969, respectively.

Professor Dudewicz was elected Fellow of the IMS, American Statistical Association, American Society for Quality, and AAAS. He was founding editor of Basic References in Quality Control: Statistical Techniques of the American Society for Quality, for which he received the ASQ Testimonial Award for "Leadership and Distinguished Service." He also was the Founding Editor of the American Journal of Mathematical and Management Sciences, currently in its 30th volume. He had over 170 publications, including 11 books, one each translated into Arabic and into Indonesian.

Professor Dudewicz was a generous person, who went out of his way to help and encourage younger colleagues. Through his myriad professional activities he collaborated with many individuals who came to value him as a colleague and as a friend. His many associations with foreign colleagues were based on a genuine interest to stimulate their research. This led to many longterm collaborations and close friendships. He had a keen curiosity about their cultures and helped them with much advice. Professor Dudewicz is survived by his wife of 47 years, Patricia, three children, and five grandchildren. He will be missed by his family, friends and the statistical community. We remember him as a person full of energy, inspiration and integrity. ❖



## Congratulations to Our Award Winners!

### POWERS TEACHING AWARDS

The Thomas and Jean Powers Teaching Awards are presented each year in two categories: (1) the best TAs teaching either recitations or lectures, and (2) an outstanding professor in the Department. These awards were instituted in 1986 through a generous gift to the Statistics Development Fund by Tom and Jean Powers.

The Department is lucky to have a large number of excellent Graduate Teaching Associates. The selection of the best TAs is never an easy task, and there are always a number of extremely good teachers who are runners-up for the award. In 2009-10, the awards for best TA were presented to **Durrel Fox**, **Erin Leatherman**, **Katie Thompson**. The faculty award was presented to Professor **Kate Calder**.



Katie Thompson receiving the Powers Teaching Award from Professor Bill Notz.

### WHITNEY AWARDS

In 1992, Professor Emeritus Ransom Whitney and his wife Marian Whitney made a generous gift to the Statistics Department Fund to institute several awards for graduate students. They added to this gift in 2008, allowing us to increase the number of awards as our graduate enrollment increases. In 2009-10, there were a large number of deserving students and determining the best was difficult. The winner of the best consultant award in the Statistical Consulting Service was **Hang Joon Kim**. The awards for the best research associate were given to **Matthias Katzfuss**, **Lori Hoffman**, and **Jenny Brynjarsdottir**. The awards for best research leading to the Ph.D. were awarded to **Lei (Emily) Kang** and **Jingyuang (Summer) Yang**. We congratulate these students and thank them for their hard work.

### CRAIG COOLEY MEMORIAL PRIZE

The Craig Cooley Memorial Prize for 2009-10 was awarded to **Candace Berrett**. Each year this award is presented to a graduate student in the department demonstrating exceptional scholarly excellence and leadership abilities. Craig embodied these two qualities throughout his graduate career. Tragically, he was killed just before receiving his Ph.D. in 1996. To honor his memory the department created the Craig Cooley Memorial Prize. For additional information about contributing to this fund, please see page 19 of this newsletter.

### UNIVERSITY FELLOWSHIPS

For 2009-10, single-year University Fellowships were awarded to **Catherine Albright** from Millersville University, **Shasha Bai** from Sichuan University, **Linchao Chen** from Shanghai University, **Casey Davis** from the University of North Carolina, **Zhengyu Hu** from Zhejiang University, **John Lewis** from Miami University, **Steven Penzenik** from Indiana University South Bend, **Ashley Westra** from Grove City College, **Hugh Williams III** from Washington University in St. Louis, **Zhiguang Xu** from Sun Yat-Sen University,

**Jiangyong Yin** from Fudan University, and **Yulei Zhang** from Nankai University. A two-year Distinguished University Fellowship was awarded to **Grant Schneider** from The Ohio State University.

### INDUSTRIAL AND DEPARTMENTAL FELLOWSHIPS

Each year the Department is able to offer special recruitment fellowships to some of the very best new applicants to our graduate programs. These fellowships are funded through the generous support of sponsoring industrial organizations, for which the department is always grateful. The sponsoring organizations, their Fellowship stipend amounts and the 2009-10 student recipients are as follows:

#### Battelle Fellowships

Three awards, each in the amount of \$5,000, were provided by the Battelle Memorial Institute. The recipients were: **Michele Josey** from North Carolina Central University, **Ashley Westra** from Grove City College, and **Hugh Williams** from Washington University in St. Louis.

#### Capital One Fellowship

Capital One provided an award in the amount of \$5,000. The recipient was **Catherine Albright** from Millersville University.

#### Lubrizol Foundation Fellowships

Seven awards were provided by the Lubrizol Foundation. **K. Leanne Sanders** from North Carolina State University was the recipient of a \$1,500 award. The 2009-10 recipients of \$3,000 awards were **Robert Ashmead** from The College of Wooster, **Emily Bayer** from The Ohio State University, **John Lewis** from Miami University, **Jared Martin** from Millersville University, **Steven Penzenik** from Indiana University South Bend, and **Grant Schneider** from The Ohio State University.

We appreciate the support from Battelle, Capital One, and Lubrizol.

#### Chair's Fellowship

Provided through the Department to aid in the recruitment of outstanding applicants, in 2009-10, **Zhengyu (Rex) Hu** from Zhejiang University was the recipient of a \$1,000 award and **Casey Davis** from the University of North Carolina was the recipient of a \$1,500 award.

#### Miller Fellowship

Professor and Education Specialist Jackie Miller, provided funding for a \$1000 Statistics Education Fellowship to be awarded to an outstanding applicant with interests in Statistics Education. The recipient of the first Miller Fellowship was **John Lewis** from Miami University. ♦

## Career and Honors

**Deb Rumsey** (Ph.D. '93) currently Statistics Education Specialist / Auxiliary Associate Professor) was inducted into the "Wall of Inspiration" at Burlington High School in Burlington, WI. This award recognizes the inspirational achievement and accomplishments of alumni.

**Roger Bilisoly** (Ph.D. '98) was granted tenure at Central Connecticut State University effective fall, 2010. He is currently an associate professor in the Department of Mathematical Sciences.

**Liyan Hua** (M.S. '02) is completing her doctoral degree in Decision Sciences at Ohio State and has accepted a position at JP Morgan Chase.

**Cheryl LeSaint** (M.S. '03) was promoted to Manager of SAS/STAT Testing at the SAS Institute Inc. in 2008. She manages 9 fulltime employees and 2 students, which she reports is "a lot of fun and keeps me busy!"

**Haiying Chen** (Biostatistics Ph.D. '04) was promoted to Associate Professor in the Department of Biostatistics at Wake Forest University School of Medicine.

**Helena Mendrisova** (M.A.S. '04) has accepted a position as a Senior Research Statistician at the Nielsen Company. She will be working with "Set Top Box" television viewing data and its integration with NPM (National People Meter) sample data. David Kadonsky (M.S. '05), also at Nielsen, has been collaborating with Nielsen statisticians throughout the world on improving homescan projections.

**Jessica (Counts) Halley** (M.A.S. '06) has accepted a position at the OSU Medical Center as the Manager for Data Quality for patient satisfaction surveys.

**Yongku Kim** (Ph.D. '07) has accepted a position as an instructor in the Department of Statistics at Yeungnam University in South Korea.

**Alissa Douglas** (M.A.S. '10) accepted a position in the Customer Analytics Department at JP Morgan Chase.

**Namhee Kim** (Ph.D. '10) has accepted a research fellow position at the Gruss Magnetic Resonance Research Center at the Albert Einstein College of Medicine at Yeshiva University.

## Dependent Variables

**Mary Ellen (Smircich) Frustaci** (M.A.S. '98) and her husband Gary celebrated her 8th anniversary at Johnson and Johnson on Sept. 23, 2010 and welcomed their daughter, Olivia, born on August 25, 2009.

**David Hoffman** (M.A.S. '98) and his wife Katie reported the birth of their son, Alden David, on September 18, 2009.

**Craig Shirk** (M.A.S. '99) and his wife Carina Uhle become the proud parents of daughter Sofia Addison on April 15, 2010. Her birth weight was 6 pounds and 8 ounces, and height was 20 inches.

**Amy (Stai) Worden** (M.A.S. '98) and **Brent Worden** (M.S. '97) are currently living in the Twin Cities area of MN with their four children, ages 10, 8, 6, and 3. Brent is in his 12th year as a consultant for Perficient, Inc. Amy worked as a SAS programmer at Fair, Isaac, Inc. for five years, and is

currently a stay-at-home mom.

Yoona Hwang, daughter of **Beom Seuk Hwang** (Ph.D. student in Biostatistics), was born on February, 21, 2010.

**Jared Schuetter** (Ph.D. '10) and his wife Michelle Grindstaff welcomed daughter Claudia Jane on Thursday, February 25, 2010.

Professor **Radu Herbei** and his wife happily announced the birth of their son, Lucas, on April 23, 2010.

**Dale Rhoda** (M.A.S. '06) and his wife adopted their second son, Benjamin, who was born on June 5, 2010.

Flora Craigmile, daughter of Professor **Peter Craigmile** and Erinn Hade, was born on June 6, 2010. ❖



David Hoffman with son Alden and Mary Ellen Frustaci with daughter Olivia



Scott Mollan, Katie (Droll) Mollan and their son with Nader Gemeal

## Sincere Thanks to Our Donors

We wish to recognize those alumni, friends, students, staff, and faculty members who have helped the Department financially over the past year. Your donations, no matter the amount, make it possible to continue to attract, train, and reward our excellent graduate students. Many thanks to the following donors:

### **CAUSE Support Fund**

Stephanie Fitchett

### **Cockins Hall Renovation and Improvement Fund**

Jingyuan (Summer) Yang

### **Craig Cooley Award Fund**

Marcie Naber

Brian Wynne

### **Gary Koch Student Travel Award Fund**

Kyle Hostetler

Yunkui Hou

Gary Koch

Jun Li

Xiuhong Li

Xueliang (Jeff) Pan

Jingyuan (Summer) Yang

### **Graduate Fellowship Fund**

George Abraham

Arthur Bocian

Deborah Dukovic

Brian Williams

### **Thomas E. and Jean D. Powers Award Fund**

Robert Abel

### **Rustagi Memorial Lectureship Fund**

Madhu Anderson

Patrick Anderson

Carol Ordille

Jagdish and Kamla Rustagi

### **Statistics Support Fund**

Teri (Tykodi) Berliner

Hal Bogart

Rongdean Chen

Mary Ellen (Smircich) Frustaci

Douglas Holly

Howard Kaplon

Carolyn Koch

Gary Koch

Jessica Kohlschmidt

Liang Liu

Charles Locke Jr.

Glenn Miller

Eswar Phadia

Barbara Burton Potter

Randall Potter

Robert George Rashid

Keith Schleicher

John Skillings

James Sullivan

Rebecca Trempel

Neal Wallingford

Brian Williams

### **Whitney Endowed Fund**

Hal Bogart

John Jacobowitz

Charles Oprian

Maria Ines Pangilinan

Marian Whitney

Not listed above are the members of our faculty and staff who donated to the Department this year, as that would require giving a complete roster of the Department. During the 2010 Campus Campaign, for the first time ever, two departments had 100% of their faculty and staff contributing to the University. Statistics was one of those departments! That 100% participation is evidence of the commitment of our faculty and staff to the Department, and is greatly appreciated. ❖

## Supporting Current and Future Students

As you can tell from the reports in this newsletter, we have an excellent group of graduate students in the Department. To continue to attract and support these students is, of course, expensive. For example, we pay for outstanding potential students to come visit the Department. We recognize excellence in teaching, research, consulting, and service by graduate students through annual awards. We support students traveling to present their work at national conferences. We ask you to consider helping support our current and future students through a contribution to one of the Departmental funds for graduate students:

**Craig Cooley Fund #06940-601434**

**Gary Koch Student Travel Fund #06940-480697**

**Graduate Fellow Fund #06940-310567**

**Powers Award Fund #06940-605898**

**Statistics Support Fund #06940-307669**

**Whitney Scholarship Fund #06940-607689**

[www.stat.osu.edu/dept/giving](http://www.stat.osu.edu/dept/giving)

This is an excellent way for alumni to give something back to the Department. Your gift, in any amount, is important and appreciated. ❖

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## CONGRATULATIONS TO OUR GRADUATES!

The following students earned degrees in 2009-2010.

### Master of Applied Statistics

#### SUMMER 2009

Xuetao Huang  
Mohan Liu  
Kathryn McFarland  
Vandna Pruthi

#### AUTUMN 2009

Karla Koudelka  
Jianxin Sun  
Xi E Sun  
Ji Ye  
Fang Yi

#### WINTER 2010

Sungwoo Ahn  
Minjung Cha  
Alissa Douglas  
Yongjie Miao  
Shu Xiao  
Yibo Zhang

#### SPRING 2010

Kuldeep Agarwal  
Cheng Chen  
Jiye Cheng  
Ling Jin  
Vyaskumar Krishnamurthy  
Junan Li  
Jing Liu  
Pu Liu  
Yilin Ma  
Peter Mazzeo  
Shu Su  
Qiping Xu  
Ying Xu  
Honglei Zhu

### Master of Science

#### SUMMER 2009

Roger Erich

#### AUTUMN 2009

Jinguo Gao  
Alice Hinton  
Danielle Sullivan  
Felicia Wennersten

#### WINTER 2010

Stephen Bamattre  
Tayler Blake  
Michelle Nelson  
David Spade  
Wenxin Xu

#### SPRING 2010

Tyson Crowther  
John Davenport  
Jared Jelsing  
Bethann Pflugeisen  
John Snyder

### Doctorate

#### SUMMER 2009

Youlan Rao

#### AUTUMN 2009

Lei (Emily) Kang  
Yi Liu  
Li Yu

#### WINTER 2010

Namhee Kim<sup>†</sup>

#### SPRING 2010

Danel Draguljic  
Nader Gemayel  
Yoonsuh Jung  
Ju Hee Lee  
Sharada Modur  
Hyejung Moon  
Jared Schuetter  
Jingyuan (Summer) Yang<sup>†</sup>

<sup>†</sup> Biostatistics PhD