

## DEPARTMENT of STATISTICS

## NEWS

College of Mathematical and Physical Sciences

## Statistics at the Mathematical Biosciences Institute

The academic year 2004-2005 was the year of Genomics, Proteomic, and Bioinformatics at the Mathematical Biosciences Institute (MBI). It has been a banner year for Department of Statistics involvement and activity, with Hani Doss, Lynn Friedman, Jason Hsu, Yoonkyung Lee, Shili Lin, Haikady Nagaraja, and Joe Verducci all participating.

Two excellent tutorials, well attended by statistics faculty and graduate students, began the year. The first was led by Chandran Sen and Sashwati Roy from our Davis Heart and Lung Institute; the second was led by Sandrine Dudoit and Nick Jewell from the biostatistics and statistics departments at the University of California, Berkeley. Both explored gene expression, with emphasis on microarrays.

Workshops covered a wide variety of timely topics, including the Analysis of Gene Expression Data, Regulatory Networks, Computational Proteomics, New Array Technologies, Emerging Genomic Technologies, Biomarkers in HIV and Cancer Research, Enzyme Dynamics and Function, and, most recently, Recombination: Hotspots and Haplotype Structure.

A major benefit of these workshops has been the opportunity to connect with other researchers and follow up on col-

laborative projects. MBI post docs often contribute a great deal of effort to these projects, which may extend over several years. For example, Tom Santner has been completing work on a previous year's project with Geraldine Wright, now at Newcastle University, learning how bees differentiate scents; and Haikady Nagaraja has pursued his research on modeling heart rate variability with the MBI post doc Mike Stubna.

Statistical projects arising from this year's topics include probe level analysis of wound healing, design of microarray experiments in cancer studies, Serial Analysis of Gene Expression (SAGE) methods for detecting differences in biological processes, the identification of microRNA targets, the epigenetics of tumorigenesis, and inferences about genetic processes in the oocyte cycle of rainbow trout.

### Probe Level Analysis of Wound Healing

As a follow-up to the Sen/Roy tutorial, Hani Doss, Yoonkyung Lee, and Joe Verducci worked with Bertram Zinner (MBI visitor from Auburn University) on DNA microarray data from myocyte cells in the blood of medical students, drawn before and after a stressful study period.

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Statistics faculty attend a reception at MBI director Avner Friedman's home. Back Row: Post doc Jin Zhou and his wife. Front Row: Shili Lin, Joe Verducci, Avner and Lynn Friedman

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## First United States Conference on Teaching Statistics (USCOTS) Is a Big Success!

The first USCOTS took place on May 19-21 at Ohio State. The theme of the conference was "Making Connections in Teaching Statistics." The conference was attended by over 300 people from all over the United States, as well as participants from Belgium, Czech Republic, Ghana, and Nigeria. Teachers from all departments and institutions came to learn and exchange ideas about teaching statistics at the undergraduate level.

We had five outstanding plenary talks given by Roxy Peck, Dick Scheaffer and Ann Watkins, Robin Lock and Roger Woodard, Cliff Konold, and George Cobb. George Cobb was the speaker at the banquet dinner, and we presented George with the first USCOTS Lifetime Achievement Award for Statistics Education.

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# 2005: Laying Tracks for a Run at the Top 10 Publics

By Doug Wolfe

Things continue to move at a fast pace in our Department of Statistics. This has been an exciting year, full of good events and positive changes, but leaving enough unmet challenges to keep us working hard! We have again added outstanding new junior faculty members, and our faculty and graduate students continue to garner



Doug Wolfe

national awards. Research collaborations with a wide variety of scientific colleagues across campus and externally with Battelle Memorial Institute, Oak Ridge Laboratories, and the National Center for Atmospheric Research have mushroomed. Our external research funding hit an all-time high

last year, and it continues to rise this year even in the face of substantial cutbacks in federal funding opportunities. We hosted the first United States Conference on Teaching Statistics (USCOTS) here at Ohio State, and from all indications (attendance, participation, and personal comments from attendees) it was a resounding success. A second conference is already in the planning stages for 2007. Our Statistical Consulting Service (SCS)

has undergone some major changes (all positives). Under the able leadership of Tom Bishop, the number of graduate students and faculty across the university being served by the SCS has steadily increased throughout the year. In addition, we have begun to attract a substantial number of externally funded projects. It is nice to see that our graduate students are once again queuing up for the opportunity to work in the SCS. Our undergraduate and graduate courses continue to overflow with students, including our expanded summer course offerings. We continue to attract a significant number of "external" part-time Master of Applied Statistics students in addition to our expanded full-time graduate student program. We have also recently initiated the process to obtain Graduate School approval for three graduate minors in statistics, biostatistics, and statistical data analysis. These new options are designed to attract those external graduate students who wish to obtain some documented expertise in statistical methodology but who do not have the time in their own master's or Ph.D. programs to pursue a full-blown M.A.S. degree program. Many of these changes are documented elsewhere in the newsletter, so I will concentrate on only a few of them in this report.

## Department External Review and Strategic Plan

This past November, the college invited a distinguished committee of statisticians (Jim Berger, committee chair, Duke University; Mary Ellen Bock, Purdue University; David Moore, Purdue University; and Robert O'Neill, Center for Drug Evaluation and Research) to visit campus and provide an evaluation of the Department of Statistics. They spent two days with department faculty members and graduate students and then submitted a detailed written evaluation report on the department directly to Dean Richard Freeman in the college office. We are pleased with the committee's assessment of the department, including our faculty, graduate programs, and students, and we look forward to working with Dean Freeman toward implementing some of the excellent suggestions made by the committee for moving forward.

Spurred by strong external reviews for the departments in the college, Dean Freeman has challenged us to go one step further. We are just beginning the process of preparing a three-to-five year strategic plan for our department with the goal of breaking into the top 10 statistics programs at public institutions in the country. There is room at the top, and we believe that we are poised to take advantage of the opportunity. I hope that next year at this time I can report to you with more details on some of the initiatives we will be taking to make this happen. Who knows, you may be directly involved with one or more of them!

## Faculty Awards and Honors

Once again our faculty garnered well-deserved national honors. Mark Berliner was selected as a Fellow in the American Association for the Advancement of Science and Joe Verducci was chosen as a Fellow of the American Statistical Association. Please join me in congratulating Mark and Joe on their prestigious awards this year.

## Personnel Changes

Continuing a recent pattern, we were again heavily involved with hiring activities this past year. After an intense faculty search during winter

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Department of Statistics  
The Ohio State University  
1958 Neil Avenue  
Columbus, OH 43210-1247

(614) 292-2866  
(614) 292-2096



Editor:  
Mike Fligner

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quarter, we completed another successful recruiting year by hiring three outstanding new entry-level assistant professors. All three will join us in autumn quarter 2005, bringing the number of full time faculty on our Columbus campus to 28, as we inch closer to the projected goal of 30 envisioned when the department was founded in 1974. I am pleased to introduce them briefly to you (for more details, see separate articles in the newsletter).

Chris Hans joins our department as a new assistant professor after receiving his Ph.D. degree from Duke University. Chris' dissertation research focused on Bayesian model selection/averaging, with a naturally strong emphasis on statistical computing. He worked on variable selection and model uncertainty in the contexts of regression, prediction, and complex multivariate modeling with many variables. He developed a "Shotgun Stochastic Search" approach that uses parallel computing for searching regression model spaces to quickly catalogue high-dimension probability models. He integrated this work in a clinical setting using gene expression data to assess gene associations with cancer outcomes.

Our second new assistant professor, Tao Shi, received his Ph.D. degree from the University of California, Berkeley. His dissertation research centered on the development of new statistical methods and efficient computational algorithms designed to organize, transmit, visualize, and analyze massive data sets. He helped build efficient and accurate statistical algorithms to detect clouds over polar regions using satellite data provided by NASA's Earth Observing System. Methodologically, he studied the statistical properties of machine learning systems and applied them to cloud detection problems. He intends to continue emphasizing the development of statistical methodology for analyzing large-scale data sets in the geo- and environmental sciences.

Our third new assistant professor, Xinyi Xu, received her Ph.D. from the

University of Pennsylvania. Xinyi's main focus in her dissertation research was on the estimation of high-dimensional predictive densities. She established general conditions for optimal predictive densities under Kullback-Liebler loss. Her approach leads to better decision making and sharper assessment of risks. She is currently extending her results into important areas of application, including nonparametric regression, classification schemes, and dealing with missing data.

The department also continued to expand its presence in the field of statistics education, as Kythrie Silva joined us in a newly created position of learning technology developer. Funding for this position was made available as part of a competitive teaching and technology award from the Office of Academic Affairs. Kythrie brings excellent technological and collaboration skills to this position. She will be involved in

creating the learning technology required for in-class simulation activities, building and maintaining a student and teacher friendly platform for all class activities involving technology, and creating online assessment tools for evaluation of student learning and effectiveness of technology-based activities.

Of course, personnel changes do not always involve additions. Hani Doss has chosen to leave Ohio State and take a similar position at the University of Florida. Ernest Fokoue has resigned from his faculty position on the Newark campus to concentrate more fully on his research program. Arijit Chakrabarti is leaving after only a year with us to return to India. Kim Cate has also opted to leave the department for a new position in the Office of Business and Finance. We will miss Hani, Ernest, Arijit, and Kim and we wish them the very best in

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*We are just beginning the process of preparing a three-to-five year strategic plan for our department with the goal of breaking into the top 10 statistics programs at public institutions in the country.*

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their new endeavors.

Finally, Mike Fligner has elected to take early retirement, effective at the beginning of the 2005-2006 academic year. Fortunately for everyone in the department, however, Mike has agreed to accept a two-year Faculty Emeritus part-time appointment beginning November 1. This position will enable him not only to continue teaching our SAS courses but also to maintain his excellent service as department vice chair.

### **Continued Concerns— Space and Good Space**

The one major concern that is still not resolved is that of space, particularly good space, for the expansion of both the department faculty and our graduate program. We continue to work on short-term accommodations, but look forward to the day when we can be talking about long-term solutions!

### **We think we can, we think we can, we think we can...**

Once again, all of the credit for the many good things that happened this past year, and those that are continuing to happen, in our Department of Statistics goes directly to the outstanding and dedicated faculty, staff, and graduate students in our program. Our able crew is already hard at work laying new tracks as we move upward in our quest to become one of the top 10 statistics programs at public universities in the United States. That will require significant effort and full cooperation from everyone in our department but I am confident that we will achieve this milestone. I am not sure when you will here these words in a future newsletter but I am certain that you will...

**we knew we could, we knew  
we could, we knew we could...**



## Modeling Consumer Behavior

“Choice is the driving force of capitalism. Choosy consumers determine what products and companies thrive or die as they pick among tubes of toothpaste or plans for cellphone service. Choice fuels competition, innovation and efficiency.” So wrote Eduardo Porter in *The New York Times* (March 27, 2005, page 12). To find answers to problems such as how many people acting individually can shape broad marketplace demand, Angela Dean, Steven MacEachern, and Mario Peruggia (Department of Statistics); Michael Browne (Psychology and Statistics); Trisha Van Zandt (Psychology); and Greg Allenby and Thomas Otter (Marketing) have formed a new interdisciplinary research team. Recently, the team secured one of the first grants offered by the National Science Foundation (\$600,000 over four years) to use statistics to develop new models of human behavior for marketing.

To be of most use, marketing models need to be able to represent information not only about the average behavior of consumers but also about individual consumer behavior. By their nature, such models are complicated and “hierarchical” or “multi-layered.” Over the past 15 years, hierarchical Bayes models have been successfully applied in many areas, yielding better solutions to larger problems than was previously possible. Steven MacEachern and Mario Peruggia see enormous potential in using Bayesian hierarchical methods to unite different models of human cognition that have been developed in psychology over the years and to incorporate them into marketing settings. For example, the standard in marketing studies is to have a diverse set of data sources, each of which contains precise information on one aspect of the problem but which lacks information on

*A new Graduate Interdisciplinary Specialization is being planned that will allow students in psychology, marketing, and statistics the chance to develop crossover skills in the three areas.*

other aspects of the problem. The hierarchical modeling strategy allows good models to be built for each data source and then the models can be hooked together into a single, complete whole.

Trisha Van Zandt thinks about consumer decision making in the following way: as we consider a product, we gather information over time, marking ticks in a kind of mental yes or no column until we feel we know enough to buy or not. We can model this procedure as a set of Poisson processes, each of which keeps track of the information toward one of the possible alternatives. The processes form a “horse race,” in that the first process to reach its threshold “wins” and determines the choice. Mario Peruggia, Trisha Van Zandt with Ph.D. student Cheryl LeSaint, and Steven MacEachern, Thomas Otter, Angela Dean, and Ph.D. student Shiling Ruan are working on developing such models in the hierarchical setting.

The development of strategies to combine different approaches to modeling is vital. One method of accomplishing this is to have several analysts each perform an analysis of a data set, and then to combine the analyses. A topic being researched by Steve MacEachern, Mario Peruggia, and Ph.D. student Qingzhao Yu is the development of effective

ways of doing so while remaining in the Bayesian paradigm. Similarly, the proper design of experimental studies to validate the proposed models is crucial since, if an experiment is poorly designed, even the most sophisticated analysis of data has the potential to yield no results of interest. Angela Dean and Greg Allenby with Ph.D. student Qing Liu are searching for the best designs for this purpose.

Among other problems being addressed by the research team are identification of underlying typical consumer profiles that can be used to define different segments of a consumer base (Michael Browne with Ph.D. student Longjuan Liang) and modeling advertising response (Greg Allenby and Thomas Otter).

The research team meets weekly through an interdisciplinary colloquium, which is also attended by 15-20 students from the three departments who are working in the area or who are simply interested in the topics being discussed. A new Graduate Interdisciplinary Specialization is being planned that will allow students in psychology, marketing, and statistics the chance to develop crossover skills in the three areas.

The interdisciplinary research has implications not only for better marketing tools but also for the development of new statistical methodology. It represents an exciting new initiative for the statistics department.



## Welcome New Faculty!

### Chris Hans

I am currently completing the Ph.D. program at the Institute of Statistics and Decision Sciences at Duke University and am planning for my move to Columbus this summer. My dissertation research with my advisor, Mike West, focused on regression model search and uncertainty for problems with large numbers of predictor variables, e.g. in the context of gene expression array data for cancer studies.



Chris Hans

My research interests lie in Bayesian methods, model selection and uncertainty, and statistical computing. I am especially interested in parallel computing and the ways in which it can be used to inform the development of new methodology. At Duke I developed parallel computing methods for exploring model spaces and used these approaches to analyze cancer genomic data at Duke's Center for Applied Genomics and Technology.

Before moving to North Carolina to study at Duke, I received my A.B. in statistics from Harvard. For my honors thesis, I developed Bayesian models in astrostatistics, specifically for analyzing energy spectra with low photon counts. While at Harvard I also served as president of the Hasty Pudding Theatricals, the country's oldest collegiate theatre company.

I grew up outside of Buffalo, New York, and so (in theory) should be prepared for Midwestern winters. In any event, I'm looking forward to settling in at Ohio State and getting to know everyone in the statistics department.

### Tao Shi

I finished my graduate studies at the University of California at Berkeley in 2005. Working with my thesis advisor Professor Bin Yu, I focused on building efficient and accurate statistical algorithms to detect clouds over Polar Regions using satellite data provided by NASA's Earth Observing System. In statistical methodology research, my interest was studying the statistical properties and computation of machine learning algorithms involving kernels, such as Support Vector Machines and spectral learning algorithms. My long-term research interests are studying the statistical methodology needed for large scale dataset analysis and applying such methods in the context of statistical problems arising in geo- and environmental sciences.

I was born in Shaanxi, China. I received both B.S. and M.S. degrees from Peking University, China. In my seven-year study in Peking, I was fascinated by the interesting problems that statisticians were working on, so I came to the United States to pursue a Ph.D. in statistics. I spent five enjoyable years at Berkeley. The best part of my life in Berkeley was my great office, from which I overlooked the San Francisco Bay and the Golden Gate Bridge, Bay Bridge, and Alcatraz.

I will join the Department of Statistics at Ohio State in September 2005. I believe there is a strong fit between my research interests and those of my future colleagues. I'm looking forward to working with my colleagues and the students in the department this fall.



Tao Shi

### Xinyi Xu

I am expecting to graduate from the University of Pennsylvania this August. Currently,

I am working with Professor Edward George on my dissertation in the area of Bayesian density forecasting. I have established some general conditions for optimal predictive densities of the multivariate normal model under

Kullback-Leibler loss, which not only subsume important results in the current literature but also pave the way for constructing large new classes of improved Bayesian predictors. I have also revealed some very interesting connections between the point estimation and density forecasting problems. My dissertation has laid the foundations for the development of new predictive methods for a wide variety of problems that I will enthusiastically pursue.

I was born in Hefei, China, a beautiful capital city that is quite similar to Columbus in many ways. I received my undergraduate education in the Special Class for the Gifted Young at the University of Science and Technology of China with a mathematics major. When I graduated in 2001, I wanted to study statistics in the U.S. and was fortunate to be accepted by the University of Pennsylvania.

In my spare time, I love traveling, cycling, and skating. I hope to pursue more sporting activities after moving to Columbus. I also enjoy reading novels and Chinese classical poetry. I especially appreciate the beautiful stories and lines.

I am very excited about joining the statistics department at Ohio State this fall. I look forward to making many new friends and developing new collaborations in various areas with my future colleagues.



Xinyi Xu

## Graduate Student Profiles

### Elizabeth Cornett



In June 2001, I graduated from Ohio University with a bachelor's degree in mathematics education. Shortly after graduation, I moved to Maryland where I taught high school math for two years. My first year of teaching was not as gratifying as I had hoped, so I quickly decided to pursue a different career.

I started investigating graduate schools and soon after came in contact with Dr. Elizabeth Stasny. She encouraged me to apply to the Department of Statistics and supplied valuable information. By December 2002 I had sent in my application for admittance and found myself visiting Ohio State for graduate recruitment day in January 2003.

Although the campus was quite daunting, I tried not to make any hasty decisions. After spending the entire day at the university, I was pleasantly surprised to find that the size wasn't reason for concern. I thoroughly enjoyed meeting current students and faculty. Everyone was pleasant and forthcoming about life at Ohio State. In March 2003, Dr. Stasny sent an e-mail congratulating me on being one of the recipients of a University Fellowship. In the summer of 2003 I moved back to Ohio and became a Buckeye.

In the summer of 2004 the graduate school postponed my last quarter of fellowship until autumn so that I could work as an intern for the Census Bureau in Suitland, Maryland. This experience allowed me to use some of the things I had learned in my classes, broadened my knowledge of SAS programming, and exposed me in depth to the world of survey sampling. I enjoyed my experience so much that I applied for a full-time job. Immediately before the start of fall quarter, I received word that I had been hired by the Census Bureau as a mathematical statistician. My new job would start in January 2005. All I needed to do now was graduate, which meant passing the M.A.S. exam.

For the first month and a half of fall quarter, I studied. When I wasn't in class I was in the library practicing problems, reading over notes, or meeting with professors. The day I found out I had passed is etched in my memory. I was so ecstatic and proud...all of my hard work had paid off. I do know I owe a great deal of my success to the professors who helped me along the way. Each one with whom I came into contact made me feel that his or her success was linked to mine. Those professors were in large part why I was able to graduate with my master's of applied statistics in four quarters. I thank them wholeheartedly.

I am currently enjoying my job at the Census Bureau and am learning more and more about survey sampling, SAS programming, and having a full-time non-teaching job. I thank Ohio State for opening the doors for me to a new career.

### Jesse Frey



I have been interested in numbers for as long as I can remember. As a child, I enjoyed exploring the population statistics in the *World Almanac*, and, like a number of other current statisticians, I was an enthusiastic reader of the annual *Bill James Baseball Abstract* during the late 1980s.

I took lots of math courses during high school and college, but I never had an introductory statistics course like the ones our department offers to undergraduates. As a result, I don't think I was aware of statistics except perhaps as a small part of mathematics. After graduating from Presbyterian College (SC) with majors in math, physics, and history, I decided to pursue graduate study in math at the University of North Carolina. I earned a master's degree there, but I wasn't making the progress I wanted towards the Ph.D. Thus, I decided to take some time off, and I spent part of a year teaching math courses at three different colleges at the same time. That experience inspired me to return to graduate school, and I knew enough by then to consider options other than further study in math. After some careful thought, I chose the Ohio State statistics department—in the process, becoming the first student recruited by Dr. Stasny in her new role as Graduate Studies chair! I entered the program familiar with a lot of the mathematics used by statisticians, but almost completely ignorant of statistics itself. Fortunately, the Early Start summer program turned out to be just what I needed.

Before starting that summer program, I worked as a research intern at Battelle. I enjoyed my programming and data analysis work, but I'm sure that I could have contributed more if I had known some statistics. But I got to see how statistics could be applied to solve scientific problems.

Thanks to a fellowship awarded by the department, I was able to immerse myself in course work during my first two years in the department. I worked as a research assistant for Dr. Cressie during my third year, and I taught a section of the probability course for undergraduate engineering majors this past fall. Working as a research assistant helped me to improve both my statistical writing skills and my ability to work with messy data, while teaching helped me improve my ability to explain and present statistical ideas.

Since the middle of my third year, I've been working on a dissertation under the direction of Dr. Nagaraja. That work is in the area of order statistics and nonparametrics, but my gains from working with Dr. Nagaraja have extended well beyond purely statistical matters. He gave me great advice during my job search last fall, and he has a talent for suggest-

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## Marilisa Gibellato



I am an education addict who hails from Sylva, Ohio. Many of the students in the department arrive from far-away lands to pursue their degrees, dealing with the challenges of differing educational systems and federal government restrictions. I too had similar issues as I arrived from the UK. I'm also

a medical student at Ohio State, as well as a naval officer. "Hold on a second," you say? OK, let's back up.

I attended the U.S. Naval Academy and earned an undergraduate degree in mathematics in 1996. I also learned lots of other things while there, such as how to memorize long lists of aircraft specifications and how to scrub one's shower for four hours with ammonia in order to pass the dreaded "black sock" inspection. While a midshipman, I also ran track and played soccer for the varsity teams.

Upon graduation, I was able to convince the navy that I was neither the mud-crawling Marine Corps type, nor the 3-G-pulling jet flying type, but rather the eternal education type. They allowed me to apply to med school, but before I was to start my medical education, I was selected by the British consulate to eat fish and chips with lager for two years as a British Marshall scholar at Trinity College, Cambridge University. Virology, with a minor in microbial and parasitic diseases, was my course of study. However, many of my rowdy friends at Cambridge were math people. They convinced me to attend some very raucous math seminars... and brought me back into the fold. I decided I wanted to try to integrate my mathematical interests with my desire to become a physician. Thus, I came across the idea of a Ph.D. in biostatistics.

In the summer of 1998, I arrived at Ohio State to answer the question posed to first-year medical students, "What is inside a cadaver?" I continued to see dead people for the entire year. It wasn't until the second year of med school, which I titled "Pathology: the study of disease and how one becomes a cadaver (see year one)," that I started to take statistics courses. Now, let's do the math. Two years of exposure to deadly viruses plus one year of inhaling formaldehyde equals my brain being scarred and pickled resulting in a rather painful re-entry into the mathematical business. Dr. Stasny and Dr. Peruggia were very supportive that year and taught me the ways of Casella and Berger.

I next convinced the skeptical navy to grant me a three-year hiatus from medical school to finish the Ph.D. While a stats graduate student, I became involved in many departmental events. I was a co-president of the statistics graduate student society, formed the statistics coed intramural soccer team named "Type II," and helped with the

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## Melissa Ludack



In the summer of 1998, I graduated from a small high school in northern Wisconsin. At that time, going to college meant a career in the field of biochemistry. After my first year of undergraduate course work, I had finished all math requirements for my degree. I still remember celebrating that feat with

my roommate at the end of the year. The following year, I began working for a faculty member in the chemistry department. While running experiments had its moments, I did not enjoy the hours of experimentation in the lab that a career in chemistry required. My advisor suggested that I take more math classes since I seemed to enjoy analyzing the experimental results and to look into internships where I could explore some options. In the summer of 2002, I was accepted into the Research Experience for Undergraduates (REU) in the statistics summer program at Ohio State.

The 2002 REU program had eight students for the summer. Each student was paired with a faculty advisor and a scientist to work with. The projects varied, with applications ranging from medicine to engineering. My project involved how the fruit fly responded to sugar. The entomologists I worked with were hoping to learn how fruit flies are able to taste, leading to genetic models for taste in humans. While working on the project, I completed some experiments in the lab and worked on the analysis. At the end of eight weeks, each student gave a presentation on the work we had done over the summer. The REU experience convinced me to add math as a second major.

My final year of undergrad was a very long year. I had to take extra math classes since I was adding a second major so late and I was preparing to apply to graduate school. When it came time to decide where to go for graduate school, the experience at Ohio State the year before made the decision much easier. I knew the program was excellent and the graduate students that I met during the REU had offered great compliments. The Early Start program was a great way to begin the master's program, and the summer was a great way to meet other beginning students and make friends.

Now that I've graduated, I've found that Ohio State has prepared me well for life away from school. I enjoyed my time at the university and miss my friends who are still there. I even managed to become a Buckeye fan—except when they play the Badgers.

## Graduate Student Profiles (continued)

### Tao Wang



It was September 1, 1999, when I got on a Boeing 747 and left the summer heat of Beijing. I had just finished my undergraduate study in biology at Peking University that July. This was my first flight and it was an international one from Beijing to Detroit, Michigan. My final destination was Columbus, which I would call home

for the next six years. I was going to start in the graduate program in the Department of Biophysics at Ohio State with a one-year graduate fellowship. Knowing little of what to expect, I was both excited and anxious, but managed to sleep through the flight. Things became more interesting around two weeks later when I walked into Dr. Wolfe's office and applied for admission to the Department of Statistics.

Although shocking to almost everyone around me at that time, this was not surprising to me because I had been interested in biostatistics when I was finishing my B.S. degree in China. It was only after I arrived at Ohio State that I found out there was a biostatistics program in the Department of Statistics, and I was instantly attracted to it.

Having missed the summer courses that most entering students take, I spent the first year brushing up on my mathematics. I also took Stat 645 Simple Linear Regression and spent some time polishing my spoken English in Edu 105. While working through the theoretical courses, I found the discussions with my classmates extremely helpful. We would have lunch together in the office, debating different ideas and insights. Pretty soon I was up to speed with my fellow students.

Besides the fruitful discussions among students, credit must be given to all the professors who taught our graduate courses. They may have different teaching styles, but all of them are extremely nice and always available for questions, despite their busy schedules. I remember Dr. Stasny was so busy, especially after she became the Graduate Studies chair, but she would never rush through anything in class and was always patient with our questions. Learning can also be a lot of fun. In Dr. Dean's 641, we formed groups and conducted actual experiments designed by ourselves. If you smelled popcorn in the hallway back then, it would have been one of the experiments to study different brands of popcorn.

In 2002, I started to work as a research assistant for the EESEE project, led by Dr. Notz, Dr. Pearl, and Dr. Stasny. EESEE opened my eyes to the numerous applications of statistics in our daily lives. It taught me to think critically about the published results in the newspaper, journals, etc. My writing skills were also greatly improved. Teaching has also been an important part of my life at Ohio State. During my graduate study, I had the opportunity to

teach several undergraduate courses, and I found it to be immensely helpful for honing my communications skills. I am really grateful to Dr. Fligner for his confidence in my teaching and Dr. Miller for her mentoring.

After finishing most of the course work, I began working on my dissertation with Dr. Jason Hsu. My research is on the design and analysis of microarray experiments. Dr. Hsu is an outstanding researcher with incredible vision. More importantly, he is an excellent advisor who really cares about his students. I am most grateful for his encouragements and relentless patience with my growth.

After six years of graduate study at Ohio State, I am graduating this quarter. This summer I will head to Tampa, Florida, to be an assistant professor at the University of South Florida. This gives me very mixed feelings. On the one hand, I am glad that I will get my Ph.D. degree and excited about the new adventures. On the other, it saddens me to think of leaving Columbus and our wonderful department. I will miss all the faculty, staff, fellow students, and friends here. But I am also certain about one thing: I will always be proud to be a Buckeye and an Ohio State-trained statistician.

### Jesse Frey

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ing better ways to present ideas in papers and talks.

One aspect of the department that I have enjoyed very much is the seminars. The formal department seminar is a great way to learn about the problems that people are working on outside of our department, but the smaller and less formal seminars organized by faculty members offer more opportunities for student participation. The best part of the university as a whole is the library system. Having almost every reference one might want just a five-minute stroll away is something that I will miss once I leave Ohio State.

### Marilisa Gibellato

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Research Experience for Undergraduates for two summers.

Unfortunately, the navy was very strict about returning to medical school after three years. I finished my general exam a month before being cast headlong into the hospital to complete my required medical clerkships.

Through the patience and guidance of my amazing advisor, Dr. H.N. Nagaraja, I did finally finish my dissertation this year while completing my final year of medical school. It is titled, "Stochastic Modeling of the Sleep Process." I also was awarded a residency in pediatrics at Bethesda Naval Hospital and Walter Reed Army Hospital in Washington, D.C., beginning in June 2005. The residency program is ecstatic to have a statistician arriving, so I am sure I will be involved in much consulting. My eventual goal is to become faculty at a medical school involved in both pediatric clinical medicine and research. However, until that time I will go where the navy tells me—with my stethoscope around my neck and my pencil poised, ready to calculate at any moment.



## Congratulations to our Award Winners!

### Departmental Awards

#### POWERS TEACHING AWARDS

The Thomas and Jean Powers Teaching Awards are presented each year in two categories to (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 2004-05, the awards for best TAs were presented to Karen McEachrane, Bryan Ray, and Adam Weimer. Each of these TAs made an outstanding contribution to the teaching mission of the department. The faculty award was presented to Professor Mark Berliner.



Dongmei Li accepting the Whitney Award for outstanding consultant from the consulting service manager, Jeni Squiric

#### WHITNEY AWARDS

In 1992, Professor Emeritus Ransom Whitney and his wife Marian Whitney made a generous gift to the Statistics Development Fund to institute several awards for graduate students. In 2004-05, the winners of the best consultant in the Statistical Consult-

ing Service were Yifan Huang and Dongmei Li. The award for the best research associate went to Babis Papachristou. The award for best research leading to the Ph.D. was given to Jesse Frey. We congratulate these people and thank them for their hard work.

#### CRAIG COOLEY MEMORIAL PRIZE

The Craig Cooley Memorial Prize for 2004-05 was awarded to Marlisa Gibellato. 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 box at right.)

#### UNIVERSITY FELLOWSHIPS

Single-year University Fellowships were awarded to Katie Droll, Lei Kang, Xiao Lin, and Bingqing Zhou. In addition, Victor Guerrero-Aguilar and Lori Hoffman were awarded Graduate Enrichment Fellowships.

#### INDUSTRIAL FELLOWSHIPS

Each year the Department of Statistics 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 2004-05 student recipients are as follows:

##### Lubrizol Foundation Fellowships

Two awards in the amount of \$3,000 each are provided by the Lubrizol Foundation. The 2004-05 recipients were Victor Guerrero-Aguilar from Instituto Tecnológico Autonomo de Mexico and Scott Mollan from Rose-Hulman Institute of Technology.

##### Battelle Fellowship

An award in the amount of \$5,000 is provided by Battelle. The 2004-05 recipient was Peter Sprangers from St. Olaf College.

##### Merkle Fellowship

An award in the amount of \$3,000 is provided by Merkle. The 2004-05 recipient was Katie Droll from the University of Findlay.

##### Wyeth-Ayerst Fellowship

An award in the amount of \$3,000 is provided by Wyeth-Ayerst. The 2004-05 recipient was Michael Schumacher from the University of North Dakota.

We appreciate all the support from the Lubrizol Foundation, Battelle, Merkle, and Wyeth-Ayerst.

#### CHAIR FELLOWSHIPS

Single-year awards in the amount of \$1500 are provided through the department as Chair Fellowships. The 2004-05 recipients were incoming students Jonathan Brito, Beau Corkins, Jessica Counts, Lori Hoffman, and Lynne Tower.

#### THANK YOU!

We wish to say a special thank you to all who help support our department activities through your donations to the university. You are helping to make lives richer for the students who are following in your footsteps. We encourage you to specify your university donations to be applied to one of the following statistics department funds. Keep in mind that membership in the Presidents Club can also be designated to one of the following funds.

**Powers Award** - Teaching awards for graduate students and faculty  
- Fund # 605898

**Whitney Scholarship** - Awards for consulting and research for graduate students - Fund # 607689

**Rustagi Memorial Lecture** - Fund # 606245

**Statistics Support Fund** - Includes support for visiting colloquium speakers, holiday party, and other select department activities - Fund # 307669

**Craig Cooley Fund** - Fund # 601434

**Statistics Graduate Fellowships** - Includes travel and other awards for graduate students - Fund # 310567

## First USCOTS

(continued from page 1)

Another award presented at the banquet dinner was for Best Contribution to CAUSEweb, presented to Webster West for his free online statistical calculations program "StatCrunch."

USCOTS had three main areas of focus: curriculum, pedagogy, and research. For each area we had a plenary session, followed by a series of up to six concurrent breakout sessions, all carefully planned and led by leaders in the statistics education community. Each breakout session was designed to be hands-on and engaging for the participants.

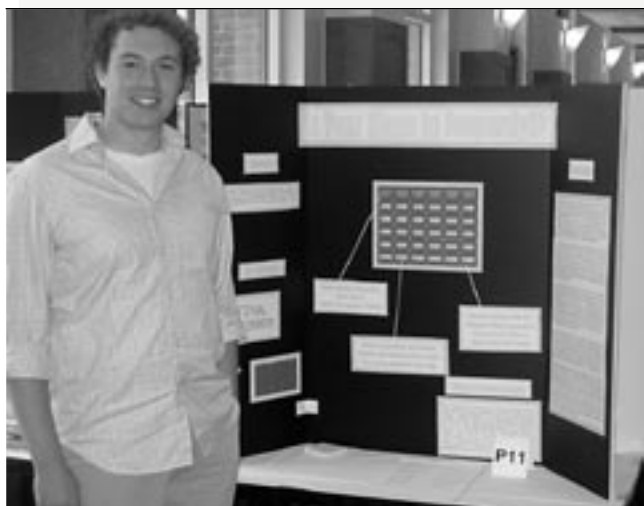
The breakout sessions were followed by Spotlight Sessions, which provided a means for individuals to present posters, demonstrations, slide shows, etc. We had over 100 spotlight participants at USCOTS, each one unique and informative. Lunch also involved statistical discussions, as participants were able to select from a variety of 15 different topics for table discussions, led by various members of the statistics education community, including the plenary speakers.



Three USCOTS participants working together in a breakout session



Dennis Pearl and Deb Rumsey presenting George Cobb with the first USCOTS Lifetime Achievement Award for Statistics Education



Ohio State statistics graduate student Adam Weimer presenting his spotlight session poster of statistics "Jeopardy"

## Statistics at the MBI

(continued from page 1)

The data were provided as part of long series of studies on stress and health by Janet Kiecolt-Glasser (Ohio State psychology department), and others. The relatively small number of samples called for efficient use of information, and so our statistics group is using a probe level analysis of the data, which is a more powerful approach than the standard mean level analysis. Tao Wang, our new statistics Ph.D., has assisted in the project by implementing computational algorithms for the probe level data. The group plans to finish its work this summer, but Joe is continuing to work with Chandran Sen and Sashwati Roy in the creation of a Wound Healing Center at Ohio State.

## Microarray Experiments in Cancer Studies

Jason Hsu presented a talk on multiple testing in the Analysis of Gene Expression Data workshop that also cited a collaboration titled "Microarrays for Cancer Diagnostics" among Iceland Genomics Corp., Ladspitality University Hospital of Iceland, The Ohio State University, and NimbleGen Systems. Jointly with Jane Chang of Bowling Green State University and Hsu's student, Tao Wang, they have conducted two proof-of-concepts experiments demonstrating that statistical design of microarrays and sampling of tissues improve sensitivity and specificity of gene expressions analysis. Together with Yoonkyung Lee,

Each person at the conference was given a teaching resource notebook filled with materials from all of the items presented at the conference, so they could implement and follow up on ideas that they got from the conference. We also had an "USCOTS Interactive" section where people provided responses to prompts such as "Name the best statistical example" and "Top 10 Reasons to Teach Statistics." An USCOTS photo gallery of digital photos was posted, and people provided their own captions, which was great fun. There were many opportunities to make connections, and the participants took full advantage of those opportunities.

The entertainment program included music written and performed specifically for USCOTS by Jeff Witmer and Christine Franklin. One of the songs was "Use a T," sung to the tune of "Let it Be." Another highlight of the entertainment portion was a rendition of "End of the Term Statistics Rap" by Jackie Miller (written by Joy Jordan). Jackie won the USCOTS award for "Best Vocal Performance in the Rap-HipHop Category." Videos, slide presentations, handouts, photos, and the words to statistical songs written for and performed at USCOTS are available on the USCOTS web site at <http://causeweb.org/uscots>. Plans are already underway for USCOTS 07 to be held at Ohio State.

The USCOTS Program Committee was led by Deb Rumsey, Dennis Pearl, Jackie Miller, and Joan Garfield. USCOTS was funded in part by contributions from the Department of Statistics, the College of Mathematical and Physical Sciences, and the American Statistical Association.

they plan to analyze gene expressions from tumor tissues to derive a gene signature for prognosis of cancer patients.

### Serial Analysis of Gene Expression

Much of the work on gene expression is done by analyzing microarray data taken from various types of “chips.” SAGE is another analytical tool that can be used to identify expressed genes. Biochemical procedures are used to isolate “tags,” sequences of bases from messenger RNA, which can identify a unique gene. Tags are short, ranging in length from nine or 10 to 14 bases. Using SAGE, many thousands of tags can be sequenced from a tissue or cell specimen, and the tags are simply counted to yield levels of gene expression. Andrej Rotter of the pharmacology department, an associate director of the MBI, points out two advantages of SAGE: first, one doesn’t need prior knowledge of the genes that will be expressed, as one does with microarrays; second, simple counts are the data used, as opposed to the measures of color intensity used in microarrays, measures that may vary from chip to chip. Andrej and his colleagues, Adrienne Frosthalm and Margaret Popescu, have used SAGE to analyze gene expression in two groups of mice cerebella, adult and aged mice. A SAGE library is a table of tags, together with their counts, isolated from a single sample. Andrej’s group developed six libraries, three each of adult and aged mice. Shili Lin, assisted by Lynn Friedman and MBI post doc Zailong Wang, has developed a battery of tests to be used with SAGE libraries so that within-group as well as between-group variability can be assessed.

### MicroRNA Targets

MicroRNAs (miRs) are small RNA molecules encoded in the genomes of plants and animals. Each miR is a sequence of 21 nucleotides (A, C, G, or U), which is highly conserved over species. These miRs regulate the expression of genes by binding to the 3’-untranslated regions (3’-UTR) of specific messenger RNAs (mRNAs). It has been recently estimated that about 1/3 of all genes are subject to some miR regulation. The hunt is on right now to identify mRNA targets of the miRs, especially for important functions, such as cancer processes. Ohio State’s Human Cancer Genomics Program is one of the leading research centers in this area. Lynn Friedman, Shili Lin, and Joe Verducci are actively working with MBI post docs Zailong Wang and Jin Zhou in a microRNA study group that includes George Calin from Human Cancer Genetics, Ilya Ioschikhes from Ohio State’s BioMedical Informatics, Tom Schmittgen and Paul Blower from Ohio State’s College of Pharmacy, and Vince Melfi, visiting the MBI from the Department of Statistics at Michigan State University. They are comparing algorithms for matching miRs with targets and assessing statistical performance of the algorithms.

### Epigenetics of Tumorigenesis

Another area of major research at Ohio State is Epigenetics—the study of changes in gene function that cannot be explained by changes in DNA sequence. One important

mechanism for regulating gene expression is hypermethylation of parts of the promoter region of some genes. In order to obtain a detailed picture of the genes and pathways involved in tumor formation and progression, the university’s Human Cancer Genetics lab is using Restriction Landmark Genomic Scanning (RLGS), a two-dimensional DNA gel electrophoresis technique, to compare tumor DNA at various stages. Shili Lin and MBI post doc Zailong Wang have been working with Tim Huang and his group in Human Cancer Genetics on reconstructing tumor progression pathways using CpG island hypermethylation data. Hypermethylation of multiple promoter CpG islands can be progressively accumulated during tumorigenesis. This team is especially interested in the hypothesis that solid tumor development and progression are characterized by the progressive accumulation of epigenetic events.

### Genetic Processes in Fish Egg Production

While it is the season for fishing, many people have held down their consumption of farm-grown fish due to fears about mercury contaminants in the water. Well, now there is more than just mercury to worry about. Many of the hormonal medicines that we have been taking have now worked their way into the water supply. Fish are especially sensitive to estrodiol, and exposures of a few parts per billion in lakes or streams may affect fish egg production. Much is already known about how the hypothalamus-pituitary-gonad system affects egg formation and maturation, but very little is known about the genetic transduction signaling pathways that regulate this process. A group of researchers from Ohio State, the University of Idaho, and Battelle Northwest are proposing to study the genetics. Joe Verducci and Gheorghe Craciun (a post doc at the MBI, now on his way to the University of Wisconsin with his wife and new Ohio State statistics Ph.D. Roxana Alexandritis) are working with Bill Hayton (College of Pharmacy) on this project.

As a follow-up to the academic year workshops, this summer Shili Lin and Joe Verducci are conducting a three-week workshop on Microarray Gene Expression Data Analysis for college teachers and graduate students. The first week consists of tutorials; participants work on mentored projects during the next two weeks and report their results at a minisymposium at the end of the third week. The projects cover image analysis and normalization of microarray data, identification of differentially expressed genes, cluster analysis of gene expression data, class discovery and prediction of tumor subtypes, and ChIP-on-chip methods to interrogate the cancer epigenome.

Next up at the MBI is the 2005-2006 year in Ecology and Evolution. In September, Dennis Pearl will join population geneticist Paul Fuerst in presenting a tutorial on phylogenetic tree reconstruction and will also be helping to organize two workshops on phylogenetics in the autumn quarter. Noel Cressie and Kate Calder will be working on organizing the spring quarter workshop on uncertainty in ecological analysis. Check out [www.mbi.osu.edu](http://www.mbi.osu.edu) for more details.

## Grad Student Corner *By Elizabeth Stasny*

### Our Ph.D. Graduates Prepare to Make Their Marks

We are proud to have another excellent group of statistics and biostatistics Ph.D. graduates this year. They will be making their marks as Ohio State graduates from some very prestigious positions, as you can see from the list below:

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

**Marilisa Gibellato** - Bethesda Medical Center. Marilisa completed her Ph.D. in winter quarter, and in spring quarter she graduated with her M.D. from Ohio State. She is going to Bethesda for her Pediatric Residency. She reports that Bethesda is directly across the street from NIH where she hopes to continue to engage in biostatistical research.

**Junfeng Sun** - University of Nebraska Medical Center, Omaha, Assistant Professor, Department of Preventive and Societal Medicine (Biostatistics)

**Tao Wang** - University of South Florida, Assistant Professor, Department of Epidemiology and Biostatistics

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

**Roxana Alexandridis** - Post doctoral Fellow, Computation and Informatics in Biology and Medicine, University of Wisconsin, Madison

**Cheryl Dingus** - Longitudinal Data Analysis Statistician, Battelle Memorial Institute, Columbus

**Jesse Frey** - Villanova University, Assistant Professor, Department of Mathematical Sciences

**Qianqiu (Jenny) Li** - Contract Statistician, GlaxoSmithKline Inc., Philadelphia

**Ofelia Marin** - Statistical Analyst, J.P. Morgan Chase, Columbus

### Resolving the Cliffhanger

Last year's Grad Student Corner left you wondering

how Ph.D. student **Jesse Frey** would do in the Stat Bowl at the Joint Statistics Meetings in Toronto. We're sure you spent the year wondering what happened. The suspense is now over. We are very pleased to be able to report that **JESSE WON!** Jesse gave an impressive performance in all rounds of the Stat Bowl – the competition didn't have a chance! Congratulations, Jesse!

### Our Many Other Student Winners

Our students continue to take top awards both locally and nationally.

Five of our students were finalists in the Ohio State Edward F. Hayes competition this spring. Second-year student **Chris Sroka** was the first-place winner in the Physical and Mathematical Sciences division. The five students and the titles of their presentations are:

**Jesse Frey:** "Intentionally Representative Sampling for Estimating a Population Mean"

**Jessica Kohlschmidt:** "Ranked Set Sampling: Allocation of Sample Units to Each Judgment Order Statistic"

**Babis Papachristou:** "Interval Estimation of Disease Loci – Development and Applications of a New Linkage Method"

**Chris Sroka:** "Ranked Set Sampling: A Method for Improving Estimates Obtained from a Stratified Simple Random Sample"

**Haiyan Xu:** "Using the Partitioning Principle to Control Generalized Familywise Error Rate"

**Toyin Clotey** and **Scott Mollan**, both first-year students, won Summer Research Fellowships through Ohio State's Center for Survey Research to do original survey research. Toyin's proposal, "Obtaining County-Level Measures of Urbanicity for U.S. States for Use in the Development of Impu-

tation Methods for Handling Missing Data in the UCR," is work suggested by Sociology Professor Mike Maltz and E. Stasny. Scott's proposal, "The Fear of Terrorism and Its Effects on Homeowners: Analysis of a Repeated Homeowner Survey," builds on work he did two summers ago as an REU student joint with Professor Hazel Morrow-Jones of City and Regional Planning and E. Stasny.

Four of our students were winners of student paper competitions at the national or international level.

**Roxana Alexandridis** won first prize in the student and post doctoral poster competition at the 7th International Meeting of the Microarray Gene Expression Data Society, September 2004, with her paper, "Using Gene Expression Profiles for Discovery and Classification of Tumor Types."

**Bin Li** was a winner in the American Statistical Association's Bayesian Statistical Science Section student paper competition with his paper, "Regularized Optimization in Statistical Learning: A Bayesian Perspective."

**Junfeng Sun** won honorable mention in the American Statistical Association's Biopharmaceutical Section student paper competition with his paper, "Stochastic Models for Compliance Analysis Using Inter-Dosing Times."

**Qingzhao Yu** was selected as a winner in the student paper competition jointly sponsored by the Social Statistics, Government Statistics, and Survey Research Methods Sections of the American Statistical Association. Qingzhao's research for her paper, "Bayesian Models to Adjust for Response Bias in Survey Data: An Example in Estimating Rape and Domestic Violence from the NCVS," was supported in part through a 2004 Summer Research Fellowship from Ohio State's Center for Survey Research.

We also are proud of our many students who won travel awards both locally and nationally.

**Cheryl Dingus**, **Crystal Dong**, and **Babis Papachristou** all won Ray Travel Awards from Ohio State's Council of Graduate Students.



Elizabeth Stasny

CURRENT STUDENTS AND ALUMNI - SEND US YOUR NEWS FOR THE GRAD STUDENT CORNER. CONTACT EITHER MIKE FLIGNER (maf@stat.ohio-state.edu) OR ELIZABETH STASNY (eas@stat.ohio-state.edu).

**Cheryl Dingus** won a grant from the American Society for Quality's Statistics Division to attend the 2004 Fall Technical Conference in Roanoke, Virginia.

**Soma Roy** received a travel award from the Population Association of America to present her work (joint with Sociology Professor Sharon Sassler and E. Stasny) on "Women's Marital Expectations and Subsequent Union Outcomes among Fragile Families" at the April 2005 annual meeting in Philadelphia.

**Cheryl Dingus, Tena Katsaounis, and Qing Liu** were all invited to attend and present their research at the International Conference on Design of Experiments: Theory and Applications in Memphis in May 2005. Their papers, joint with their advisor A. Dean, were as follows: Cheryl Dingus, "Average Correlations in Projections Designs"; Tena Katsaounis, "A Combinatorial Classification of 2-Level Factorial Designs"; Qing Liu, "Conjoint Studies: The 'Level Effect' and Experimental Designs."

**Jesse Frey and Haiyan Xu** were both chosen to receive an Institute of Mathematical Statistics Laha Travel Award to attend the Joint Statistical Meetings/IMS Annual Meeting in Minneapolis.

**Gang Han** was one of only six students nationally to win a Student Luncheon Scholarship from the American Statistical Association's Section on Physical and Engineering Sciences to attend the "Surviving in Industry: Advice for Newcomers" roundtable luncheon at the JSM.

**Xiang Ling and Haiyan Xu** both received travel awards to attend the "Fourth International Conference on Multiple Comparison Procedures" in Shanghai, China, this August.

### What Our Students Are Doing on Their Summer Vacations

Although many students are spending the summer here at Ohio State studying for their fall Qualifier Examinations or completing their dissertation research, others were sought out by organizations from Columbus, from around the country, and from around the world for summer internship positions. We expect to hear exciting reports on what they did on their summer vacations when the following students return for fall quarter classes.

**Jessica Counts** is spending the summer at the U.S. Census Bureau in Washington, D.C., working as a mathematical statistician.

**Elizabeth Cusick** headed south to Cincinnati to work at Procter & Gamble as a product research intern in the Research and Development Department: Fabrics & Homecare - Swiffer.

**Katie Droll** is spending her summer close to campus working as a statistical intern at Battelle Memorial Institute.

**Hongfei Li** wins the award for traveling the farthest for her summer internship. She is a research associate at CSIRO: Commonwealth Scientific and Industrial Research Organisation in Australia.

**Melissa Lovesky** headed north to Cleveland to work as a statistical intern in Research and Development at Lubrizol.

**Mike Schumacher** is in Grand Forks, North Dakota, working as a contract statistician for AGSCO, an agricultural company.

**Bernhard Renard** is spending his summer in Darmstadt, Germany, working as an analytical intern at Deutsche Telekom.

**Yan Xu** is one of two students spending the summer working as a statistician at Merkle Direct Marketing Inc. near Washington, D.C.

**Shang Zhao** is also spending his summer at Merkle Direct Marketing Inc. working as a statistician.

**Sophia Yanxing Zhao** is working at Pharmax in New Jersey as a statistical consultant doing research and analysis for pharmaceutical companies.

### Statistical Babies

This year we experienced a baby boomlet in the department! Below are the births and relevant data reported by our current students and alumni in the past year.

M.A.S. student Bahati Lett's daughter, Madiha Munashe Olivia Benjamin, was born on October 4, 2004, weighing in at 7 pounds 12 ounces.

Kelly (Geyer) Miller (M.S. 2002 and lecturer in the department for 2004-05) and husband Brian became the parents of a son, Ethan, on January 22, 2005. They report that the newest Buckeye's stats were: weight 8 pounds 6.75 ounces, length 21 inches, head 13.5 inches, blood type O+, and apgars 9/9.

Current students Lili Yu and Liang Liu became the proud parents of a baby boy, Ricky, on April 1, 2005 (no joke!). He weighed in at 9 pounds and was 22 inches long.

Junfeng Sun and his wife, Xuan, proudly announced the birth of their daughter, Lily Yuyin Sun, on April 13, 2005. She weighed in at 7 pounds 5 ounces and was 20 inches long. Junfeng reports that mom and daughter are doing great, but that he has yet to recover from the overwhelming joy!

Current students Qingzhao Yu and Bin Li announced the birth of their son, Ari Shiongzhou Li (Chinese name: Li Xiongzhou) on May 11, 2005. They note that although Ari was born a little early, he got a nearly perfect score 9.9/10 in his first (apgar) exam. He was 6 pounds 6 ounces and 19 inches long.

First-year student Hyejung Moon's daughter, Moonyoung Alica Lee, was born May 31, 2005. Hyejung's unbiased report is that Moonyoung is very pretty and lovely.

*(continued on page 14)*



Chris Sroka, winner of the 2005 Hayes Research Forum, presents his work.

**Grad Student Corner**  
(continued from page 13)

Finally, our bravest new student this summer, Jeremiah Butler, and his wife Trisha, had their second daughter, Juliann, on June 16, 2005, just four days before Jeremiah started summer quarter classes!

**Student Presentations at the JSM**

An impressive 28 of our students will be presenting papers at the JSM this August. This is over a quarter of our Ph.D. students! If you are at the JSM, you won't be able to miss seeing someone from Ohio State! The students and the titles of their talks are listed at right.



Holiday Party  
Above: Grad student David Kadonsky getting in the spirit.  
Left: Computer support staff member Eric Drake giving son Aiden a ride.  
Below: Grad students closing in at the food table.



- Roxana Alexandridis:** "Minimum Disparity Estimation in Ranked Set Sampling"
- Cheryl Dingus:** "Average Correlations in Projections Designs with Quantitative Factors"
- Xiaoyi (Crystal) Dong:** "A Bayesian Pathways Analysis of Personal Exposure to Arsenic"
- Juan Du:** "Judgment Poststratification for Designed Experiments"
- Jesse Frey:** "Two Computational Algorithms with Applications in Order Statistics and Nonparametrics"
- Marilisa Gibellato:** "The Stochastic Modeling of the Sleep-Wakefulness Process with the Development of a Sleep Index for Clinical Applications"
- Gang Han:** "Statistical Models for Computer Experiment Output Having Qualitative Input Variables"
- Yongku Kim:** "Bayesian Inference on a Multi-resolutional State Space Model with a Climate Data Example"
- Jessica Kohlschmidt:** "Rank Set Sampling: Allocation of Sample Units to the Judgment Order Statistics"
- Chen Quin (Eric) Lam:** "Physical-Statistical Modeling of Ice-Stream Dynamics"
- Bin Li:** "Regularized Optimization: A Bayesian Perspective"
- Qianqiu Li:** "Bayesian Inference of Hepatotoxicity"
- Xiaobai Li:** "Judgment Poststratification and Auxiliary Information"
- Xiang Ling:** "Adaptive Design for Dose-Response Studies Using the Partitioning Principle"
- Liang Liu:** "Reconstructing Posterior Distributions of a Species Phylogeny Using Estimated Gene Tree Distributions"
- Qing Liu:** "Efficient Experimental Designs for the Estimation of Hyperparameters in Hierarchical Bayes Models"
- Ofelia Marin:** "A New Approach for Predicting the Mean Response in Computer Experiments with Control and Noise Variables"
- Babis Papachristou:** "Multipoint Confidence Set Inference Procedures and Applications"
- Rajib Paul:** "A Bayesian Hierarchical Modeling Approach to Glacier Dynamics"
- Soma Roy:** "The Fragile Families and Child Well-Being Study: Multiple Imputations for the Missing Fathers"
- Shiling Ruan:** "Application of the Poisson Race Model to Conjoint Analysis in Marketing"
- Chris Sroka:** "Ranked Set Sampling: Improving Estimates Obtained from a Stratified Simple Random Sample"
- Junfeng Sun:** "Stochastic Characterization of Compliance Indices"
- Shuyan Wan:** "A Confident Set Procedure for the Localization of a Disease Gene with General Pedigree Data"
- Haiyan Xu:** "Using the Generalized Partitioning Principle to Control Generalized Family-wise Error Rate"
- Qingzhao Yu:** "Bayesian Models to Adjust for Response Bias in Survey Data: An Example in Estimating Rape and Domestic Violence from the NCVS"
- Jian Zhang:** "Predicting Exceedance Regions for Geostatistical Processes"
- Yonggang Zhao:** "Sieve Maximum Likelihood in Survival Analysis"

Grad Student Corner (continued)

And, in this year's cliffhanger, Jesse Frey will again be competing in the ASA Stat Bowl. Tune in to next year's newsletter for the results of that competition!

### Reports from Statistically Significant Alumni

**Roger Bilisoly** (Ph.D. 1998) sent both personal and professional news. He writes, "In June 2004 I married Nell Smith. We've relocated to start a new life in the Nutmeg State. Central Connecticut suits us well—not too crowded, but neither far from the ocean nor far from the big cities. Professionally, before getting married, I was a member of technical staff at Sandia National Laboratories in Albuquerque, New Mexico, where I worked in the Geohydrology Department. Although it was a fine job, Nell and I wanted to relocate to the East Coast where we both have family and friends. Please publish my e-mail address (bilisolyr@ccsu.edu) so that anyone who remembers me during my many years at Ohio State can say hi." Roger is now an assistant professor of statistics at Central Connecticut State University.

**Kevin Keller** (M.A.S. 1989) writes, "I worked for MEMC Electronic Materials for the last 15 years. I received a patent back in 2001 using discriminate analysis for an incoming inspection technique, US 6,293,139. It saved from days to hours determining if our polishing pads were of acceptable quality. I am now the manager of Quality Systems for the Anheuser-Busch Packaging Group. It is made up of Metal Container Corporation, Precision Printing, Longhorn Glass, Eagle Packaging, and ABRecycle. I'm based in St. Louis but I travel quite a bit now domestically. It's a great job. I manage the metrology, consistency of quality systems across each of the plants, provide high-level statistical support, and also manage capability analysis and performance for the group. We have a strong statistical focus, so that makes it a lot of fun. I still look back at going to Ohio State and studying applied statistics as the smartest career decision I ever made."

**Nancy McMillan** (Ph.D. 1993) had her fourth child in April 2004. She reports, "Nick will be 11 this summer (6th grade), Danny is 9 (4th grade), Ellie is 6 (1st grade), and Samantha turned 1 on April 30. We are selling our house in Zanesville and are moving to a temporary apartment the first week of August until the house we are building in Worthington is ready in late October or early November. Needless to say, things are busy, but I am looking forward to living closer to Battelle, which will at least reduce my commute! Worthington has a lot to offer for the kids, too!"

**Ramzi Nahas** (Ph.D. 1999) along with his wife, Jill, and three children, Lina (age 6), Jenna (3) and Michael (1), makes his home in Chiang Mai, Thailand. He is on the faculty at Payap University's Linguistics Department, Language Survey Unit and works for the Summer Institute of Linguistics as a Language Surveyor.



Grad students enjoying the Rustagi reception; from left to right: Shari Modur, Nidi Kochar, Chris Sroka, Brian Ray, Danel Draguljic, Soma Roy, and Karen McEachrane



Professor McEachern, hired as the new head of children's entertainment at the spring picnic

## Supporting Current and Future Students

*As you can tell, we have a spectacular group of graduate students in the department. To continue to attract and support these students is, of course, expensive. For example, the department matches any travel support that students receive, up to the actual cost of travel. We recognize excellence in teaching, research, consulting, and service by graduate students through annual awards, and we pay for outstanding potential students to come visit the department. We encourage you to consider helping to support current and future students through a contribution to one of the departmental funds for graduate students:*

*Statistics Graduate Fellowship Fund #310567*

*Statistics Support Fund #307669*

*Craig Cooley Fund #601434*

*Whitney Scholarship Fund #607689*

*Powers Award Fund #605898*

*This is an excellent way for alumni to give something back to the department. And remember—the better the department becomes, the more valuable your own degree is!*



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## CONGRATULATIONS

To the following students earning degrees in 2004–05!

### Master of Applied Statistics

#### SUMMER 2004

Bo Dong  
Longjuan Liang  
Kun Ma  
Helena H. Mendrisova  
Chengfu Zhou

#### AUTUMN 2004

Bin Chen  
Yang Chen  
Elizabeth Dorothea Cornett  
Yanan Hu  
Zhuojun Jiang  
David Charles Wheeler  
Chuan Yan  
Lijie Yin

#### WINTER 2005

Shuangling He  
Jie Na

#### SPRING 2005

Andrew Ryan Kerr  
Tae-Nyun Kim  
Mimi Lou  
Karen Denise McEachrane  
Syed Basha Mohiddin  
Colin Patrick O'Rourke  
Bryan Daniel Ray  
Chao Wang  
Yingru Wang  
Yun Wang  
Xiaozhou Xiong  
Liang Yi  
Mingjun Zhao

### Master of Science

#### SUMMER 2004

Lai Wei  
Wenye Yan  
Lili Yu  
Guangjian Zhang  
Yanxing Zhao

#### AUTUMN 2004

Marian Lynn Frazier  
Jessica Marie Gebler  
Qinying He  
Hae Jin Yoon

#### WINTER 2005

John Daniel Draper  
Hao Hui  
Liang Liu  
Melissa M. Ludack  
Zhen Wang

#### SPRING 2005

Brady Adams Brady  
Xiaoyi Dong  
Liyong Gong  
David William Kadonsky  
Nidhi Kiran Kochar  
Clint Douglas Roberts  
Sisi Wu  
Li Yu

### Doctorate

#### SUMMER 2004

Haiyen Chen

#### AUTUMN 2004

Kristin A. Duncan  
Martina Pavlicova

#### WINTER 2005

Marilisa Gail Gibellato

#### SPRING 2005

Junfeng Sun  
Tao Wang