

FLORIDA STATE UNIVERSITY DEPARTMENT OF STATISTICS

NEWSLETTER FALL 2013

Message from the Chairman



Xufeng Niu

It's been several years since we last published a newsletter (the last one was in 2008), and during those years our department has undergone some significant changes. Since we started the master 's degree program in biostatistics in 2006 and the first biostatistics Ph.D. program in Florida in 2007, we have experienced a growth spurt in graduate student count. The number of graduate students enrolled in our master's and Ph.D. programs were 56 in 2008, 57 in 2009, 72 in 2010, 69 in 2011, and 68 in 2012, and 95 in 2013.

In the fall of 2012, the department successfully went through its Quality Enhancement Review and University Graduate Policy Committee (GPC) Review. The department currently has 17 faculty members. The department's short-term goal is to become a

mid-size department with 20 faculty members and more than 120 master's and Ph.D.

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students by the year 2016; the long-term goal is to reach 25 faculty members and over 150 master and Ph.D. students by the year 2020.

Our faculty have received many honors, awards and promotions in recent years. Victor Patrangenaru was promoted to full professor in 2010. Wei Wu was promoted to associate professor with tenure in 2012. Adrian Barbu and Jinfeng Zhang both were promoted to associate professor with tenure effective fall 2013. Radha Bose was promoted to research associate this year. Professor Emeritus Jayaram Sethuraman received the American Statistical Association's Noether Senior Scholar

Award on August 6 at the 2013 Joint Statistical Meetings. Our students have also received numerous awards. More information on these awards is located on page 11.

Some of the best news in the department in recent years has involved new faculty hiring. With the help of both the university administration and our loyal alumni, in the past three years (2011-2013), we were able to add four new faculty members: Professor Elizabeth Slate, hired in 2011; Debdeep Pati (Ph.D. 2012 from Duke University); Qing "Michelle" Mai (Ph.D. 2013 from Minnesota University); and Minjing Tao (Ph.D. 2013 from the University of Wisconsin-Madison) in 2013.

In November, 2013, the FSU Department of Statistics hosted a successful International Year of Statistics Conference with invited



Graduate Students Katrina McAfee and Glenna Gordon at the FSU International Year of Statistics Conference

speakers form government, industry, and academia and a competition for student oral and poster presentations.

Last but not least, I am happy to inform you that the department has a chapter in the book "Strength in Numbers: The Rising of Academic Statistics Departments in the U.S". The volume was published by Springer Verlag and was edited by Alan Agresti (UF) and Xiao-Li Meng (Harvard). The FSU chapter was written by Jayaram Sethuraman and Fred Leysieffer, two former chairs of the department. The chapter covers some of the history of the department, the current status of the department up to 2012, and refers to earlier articles on the history of the department along with conversations with former faculty members. The department would like to thank Sethu and Fred for their contributions which increases the visibility of 1 our program.

DEPARTMENTAL GROWTH



With the dedicated effort of the student recruiting committee (Deb Sinha, Wei Wu and Adrian Barbu) and strong support from staff members Alex Cohn, Pamela McGhee and Marylou Tatis, this year's graduate student recruitment effort was a big success. With 47 new students admitted in fall 2013 (a normal high for us used to be around 20 new students), the total number of graduate students enrolled this semester is around 95. More than 20 of our new students are self-supported , which shows that our graduate program is very attractive to student candidates. Two of our new supported students received highly selective Legacy Fellowships from FSU, which shows that not only are we attractive to candidates, but we can also recruit top students.

Undergraduate student enrollment in the department has dramatically increased from less than 10 in 2005 to more than 70 in the spring 2013. Under Professor Dan McGee's and Research Associate Steve Ramsier's leadership in 2009, the department completed and received approval for two new certificate programs in SAS programming and data analysis, one at the undergraduate level and another at the graduate level. These two new certificate programs have helped to attract more undergraduate students to the statistical field and enhanced the job placement ability of our graduate students. Ramsier, who is our undergraduate adviser, is also the Double Major-Persuader, convincing many actuarial science majors to double-major in statistics.

NEW GRADUATE STUDENTS 2013-2014

The New Graduate Students in the FSU Department of Statistics this year are "Mike" Kyungmin Ahn, Hissah Alzahrani, Dong An, Rashid Aziz, Veronica Bunn, Qiusheng Chen, Yen-Yin Chen, Wanni Dai, Mingyu Deng, Kumaresh Dhara, Xiaoming Dong, Adam Duncan, Megan Duncan, Kelly Findley, Stephen Franke, Ashley Gardner, Ruite Guo, Tinting Hu, Edward Johnson, Hanning Li, Xutong Li, Shuyi Liu, Yuxin Liu, Yu Lu, Shaozi Ma, Wei Ma, Katrina McAfee, Kevin McCarty, Anwesha Mukherjee, Natasha Oza, Letryce Scully, Christopher Spiegel, Albert Steppi, Liesl Swoyer, Hoang Tran, Roumen Varbanov, Libo Wang, Zhifeng Wang, Ran Xue, Yang Xue, Liu Yang, Tingting Yu, Yang Yu, Yanjun Zhang, Qi Zhao, Zhen Zhong, and Jun Zou.

JAYARAM SETHURAMAN RECEIVES NOETHER SENIOR SCHOLAR AWARD

Professor Emeritus Jayaram

Sethuraman was presented with the American Statistical Association's Noether Senior Scholar Award on Aug. 6 at the 2013 Joint Statistical Meeting. The Noether Award is given annually to a distinguished senior researcher or teacher in nonparametric statistics. It is named for Gottfried E. Noether, a leading scholar in nonparametric statistics, who died in 1991, and includes a monetary prize and plaque. Dr. Sethuraman presented the invited lecture "A Personal Survey of the Dirichlet Process and Its Role in Nonparametrics" as part of the award presentation.

Sethuraman received his B.S.c. and M.A. degrees in statistics from Madras University in India (1957, 1958) and his



Jayaram Sethuraman, right, at JSM 2013 Noether Award Ceremony

Ph.D. from the Indian Statistical Institute in 1962. He served as chairman of the Department of Statistics at FSU (1987-1990), was an ASA/NSF/NSIT Senior Research Fellow (1994), served as a Fulbright Senior Research and Teaching Fellow (1995-1996 and 2004-2005), and was awarded the title of Robert O. Lawton Distinguished Professor (FSU's highest faculty rank and honor) in 1993.

Professor Emeritus Myles Hollander from our department received the Noether Senior Scholar Award in 2003.

INTERNATIONAL YEAR OF STATIST The FSU Department of

Statistics hosted an International Year of Statistics conference in November, 2013. Invited talks were given by external speakers Dr. Regina Liu, Chair of the Department of Statistics at Rutgers University; Dr. Nilanjin Chatterjee, Senior Investigator and Chief, Biostatistics Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute; and Dr. David Marker, Senior Statistician and Associate Director, Westat.

12 graduate students competed in a session of speed talks plus poster presentation and 7 students presented posters only. FSU Department of



Left to right: Xufeng Niu, Elizabeth Slate (Organizer), Robert Clickner,(Organizer), Felicia Griffin, Glenna Gordon, David Marker, Elvis Martinez, Kaixian Yu, Michael Rosenthal, Regina Liu and Mingfei Qiu

Statistics Graduate Students Glenna Gordon, Felicia Griffin, Elvis Martinez, Mingfei Qiu, Michael Rosenthal, and Kaixian Yu received award certificates and will receive \$100 cash awards.

NEW FACULTY





Minjing Tao



Debdeep Pati



Elizabeth Slate

Qing Mai joined the department in August 2013 as an assistant professor. She received her Ph.D from the University of Minnesota, Twin Cities in 2013. Her research interests include variable selection, high-dimensional data analysis, semiparametric and nonparametric statistics, and dimension reduction. Her Ph.D. work proposed several variable selection techniques for parametric, semiparametric and nonparametric high-dimensional classification problems. These techniques fall into the fast-developing families of penalized likelihood and screening methods. In addition to the methodological study, Mai is interested in theoretical studies for high-dimensional data, and applications of her methods to real -world datasets, especially in biology and computer science. Currently, she is working on relaxing Gaussian assumptions in various statistical problems.

Minjing Tao joined the department in August 2013 as an assistant professor. She earned her Ph.D. in May 2013 from the Department of Statistics at the University of Wisconsin-Madison, Tao received her B.S. in mathematics from Beijing University of Chemical Technology in 2008, and minored in international economics and trade. Her research interests are in financial time series, statistical interference for high-frequency financial data, and high dimensional -data analysis. She has published in leading journals in statistics and economics, such as Annuals of Statistics, Journal of the American Statistical Association, and Econometric Theory. Tao has also received several major academic awards, including the Laha Travel Award from the Institute of Mathematical Statistics. Her teaching activities were well recognized by her students and colleagues at UW-Madison.

Assistant Professor Debdeep Pati joined our department in fall 2012. Pati received his Ph.D. from Duke University in 2012. His current research interests include asymptotic and non -asymptotic Bayes theory in high dimensions. Bayesian density deconvolution, epidemiological data analysis, functional data analysis, and point pattern data modeling. Earlier this year Pati received an National Science Foundation travel award of \$1450 to attend the 9th Workshop in Bayesian Nonparametrics in Amsterdam. He also received a First Year Assistant Professor grant in 2013 from the Council on Research and Creativity at Florida State University for "Bayesian Shrinkage in High Dimensions: New Developments". In addition, he organized an invited session at JSM 2013 on "Bayesian Asymptotics in Big Models" with speakers Aad van der Vaart, Harry van Zanten, Ismael Castillo and Feng Liang. He is also organizing an invited session at the 27th International Biometric Conference, on "Modern Advancements in Longitudinal Data Analysis".

Elizabeth Slate received her Ph.D. in Statistics from Carnegie Mellon University in Pittsburgh and joined the faculty at Cornell University in the Department of Operations Research and Industrial Engineering (now Operations Research and Information Engineering) in 1992. She was promoted to associate professor in 1999 and spent much of 1999-2000 as a visiting mathematical statistician in the Biometry Research Group of the National Cancer Institute. She joined the Medical University of South Carolina (MUSC) in 2000 as associate professor and was appointed to professor in 2004. While at MUSC, she created and directed the NIH-supported predoctoral training program "Biostatistics for Basic Biomedical Research" (2005-2011) and directed the Biostatistics Division (2007-2009). Slate joined FSU in 2011. Businessman and FSU Department of Statistics alumnus David Fairweather established the Duncan McLean and Pearl Levine Fairweather fund to help provide additional support for Slate's research and scholarly endeavors.

Slate's recent research is in longitudinal data analysis. Bayesian modeling and recurrent events, with applications in oral health research, disease biomarkers and other health research areas. She has many publications in statistics and medical journals and has received several grants from the National Science Foundation, the National Institutes of Health, the Department of Defense and other sources. Slate is a fellow of the American Statistical Association. One of her research collaborations was recently recognized in an article entitled "FSU, Clemson researchers working together to prevent joint disorders". The article can be found at http:// artsandsciences.fsu.edu/In-the-News/FSU-Clemson-researchers-working-together-to-reventjoint-disorders .

ALUMNI CONTRIBUTIONS

David Fairweather earned a bachelor's degree from the University of California, Berkeley in 1967, followed by a master's degree and doctorate in statistics from Florida State University in 1968 and 1970, respectively.

Fairweather grew up in San Francisco and, upon graduation, began a career with the federal government as a research analyst. While he served in that position, he managed a \$300 million discretionary grant program. For the past 35 years, Fairweather has been a real estate developer and investor. More recently, he started a solar development business that produces 75 single-family homes' worth of power on a 2-acre site in Maryland. He also started a community bank in Bethesda, Md., that has grown from \$400,000 to \$395 million in assets. David is one of the primary shareholders.

Fairweather is married to Jane Fairweather, one of the top-producing real estate brokers in the Bethesda/Chevy Chase, Md., area through Coldwell Banker. He has two children, Scott and Kelly; Kelly is an integral partner in the family business. The Fairweathers have five grandchildren.

In 2011, David Fairweather pledged to support the Department of Statistics by donating \$5000 for three years in support of a new hire, Elizabeth's Slate. We



David Fairweather

by donating \$5000 for three years in support of a new hire, Elizabeth's Slate. We are very grateful for all that he has done for us and our proud of his success and his desire to give back to the university.

Ronald Hobbs (M.S. 1967) and his wife Carolyn (BS Recreation Studies, 1965) established the Ronald and Carolyn Hobbs Endowed Chair in Statistics fund in 2000. This position is held by Professor Debajyoti Sinha. We thank them for their always generous contributions.

We would also like to thank all of our alumni who have made recent contributions, including **Doug Ransom** (M.S. 1984), Ransom Solutions LLC.; **Choudary Hanumara** (Ph.D. 1968), University of Rhode Island; **Terry Katz** (M.S.1995), ImClone Systems Inc.; **William J. Blot** (Ph.D. 1970), International Epidemiology Institute; **Jagbir Singh** (Ph.D. 1967), Temple University; **Richard Busman** (M.S. 1967), **William Warde** (M.S. 1967), Oklahoma State University; **S. Edward Nevius** (Ph.D. 1975), U.S. Food and Drug Administration, Division of Biometrics; Charles White (M.S. 1987), CEW Biostatistical Consulting LLC ; Paul Von Doehren (M.S. 1967); **David T. Ensley** (M.S. 1994); and **John J. Beauchamp** (M.S. 1963, Ph.D. 1967), Lipscomb University. We also received donations from alumni outside of our major, from **Kim M. McLernon** and **Samuel Boggs**. Corporate donations came from the GE Foundation, Pharmacia Foundation, and Merck Partnership for Giving.

If you are interested in making a donation, please see the last page of this newsletter.

UNIVERSITY AND DEPARTMENTAL DEVELOPMENT

In the university and department development campaign front, FSU President Eric Barron in 2011 proposed a \$1 billion dollar fundraising over 8 years. The development campaign is in its silent phase now and will be presented to the public in September 2014. For the purpose of strengthening our programs and reaching our development goals, the department needs continuing strong support from our alumni to obtain endowed professorships, student scholarship and fellowships. Ron Hobbs was the first alumnus to contribute to an endowed professorship. We sincerely thank our alumni for their generous contributions, which make our program among the most outstanding in the nation.

ALUMNI UPDATES

2013

Derrick Hughes (M.S. 2013) is working at Farmers Insurance.

Melissa Gaisser (M.S. 2013) works for Epic in Madison, Wisconsin on the Business Intelligence Developer team.

2011

Evan Brand (M.S. 2011) is working in Geneva, Switzerland, for the UN Economic Commission for Europe. Prior to this assignment, Evan spent two years working for the UN in Beirut. This photo was taken in Junieh, Lebanon



Tamika Royal-Thomas (Ph.D. 2011) is an assistant professor at Winston-Salem University. She received a Historically Black Colleges & University – Undergraduate Program (HBCU-UP) Small Research Grant Award, a Certificate of Appreciation for outstanding scholarship and mentorship in the 2012 Summer Research Fellowship, an ROTC Certificate of Appreciation for outstanding support of the commissionee, a soldier in the United States Army, and was a JSM, Cavell Brownie Scholar in 2011 . She also started a S.T.A.T.S. (Students That Appreciate and Treasure Statistics) Club and says that the students are very enthusiastic about it. Tamika Royal-Thomas was mentioned in an FSU News article : http://news.fsu.edu/More-FSU-News/News-Archive/2011/August/Graduate-degrees-surgeas-FSU-focuses-on-doctoral-education



Tamika Royal Thomas and her husband , Omar Thomas (2011)

2010

Jennifer Deis (B.S. 2010) recently started a new job at SAS. She is a Senior Associate Analytical Consultant, specializing in forecasting. After graduating from FSU, she received her master's in statistics at North Carolina State University.

2010

Prabhakar Chalise (Ph.D. 2009) is an assistant professor at University of Kansas Medical Center, Kansas City. He was formerly a postdoctoral research fellow at the Mayo Clinic in Rochester, Minnesota.

2008

Jonathan Norton (Ph.D. 2008) is working for the Center for Drug Evaluation and Research in the U.S. Food and Drug Administration. In October he co-chaired a conference on benefit-risk assessment for pharmaceuticals."

2007

Sanjay Saini (M.S. 2007) is working at Freddie Mac as a prepayment modeler. He also received an M.Sc. in computational finance from Carnegie Mellon.

Jianghua He (Ph.D. 2007) is at the University of Kansas Medical Center and is currently an associate professor at the Department of Biostatistics.

2005

Ayesha Delpish (Ph.D. 2005) is an associate professor and chair of the Department of Mathematics and Statistics at Elon University. She was a co-recipient of the Service Award for her College in 2008 and it was the first time that it was offered to someone who had only been at the University for that short of a period of time: http://www.elon.edu/e-web/ academics/elon_college/awards2008.xhtml <http:// www.elon.edu/e-web/academics/elon_college/ awards2008.xhtml . She also started an entire stats major as the sole statistician, hired 3 new statisticians and successfully petitioned to have the department name changed to include "and Statistics".

Billy Franks (Ph.D. 2005) was recently appointed Director of the Statistics group for Health Economic and Clinical Outcomes Research (HECOR) at Astellas Pharma (Northbrook, Illinois). Franks joined Astellas in 2005 and spent seven years supporting clinical trials design, conduct, and research prior to joining the HECOR department. He continues to apply simulation, model-building, power and sample size, Bayesian analysis, hypothesis testing and meta -analysis skills, which he is grateful to have developed under the direction of his advisor, Dan McGee." Billy Frank's wife, Mahtab Munshi Franks, also received her Ph.D. in the FSU Department of Statistics in 2005. Frank's sister Katrina McAfee also joined our department as a new graduate student in Fall 2013.

ALUMNI UPDATES

1997

Tommy Minton (M.S. 1997) was promoted to associate dean for mathematics at Seminole State College in Sanford, FL in January 2012. He still teaches a section of Statistical Methods I (STA 2023) most semesters and is developing materials to teach an online class in the near future. Minton is also taking graduate courses in higher education at the University of Central Florida. His department has been undergoing major curriculum changes in developmental education and won the Pathfinder Award in September 2012.

1994

Hulin Wu (Ph.D. 1994) is Dean's Professor of Biostatistics and Computational Biology at the University of Rochester Medical Center in New York and is the founding director of its newly established Center for Integrative Bioinformatics and Experimental Mathematics. The center provides consulting services and will help broaden interdisciplinary research. Wu plans to develop a Ph.D./M.S. education program in "bioinformatics and computational biology. He also helps run the National Institutes of Health-funded Center for Biodefense Immune Modeling.

1990

Crispin Boney (B.S .1990) is employed with the United Nations International Civil Service Commission.

1987

Chuck White (M.S. 1987) completed 33 years of federal service and recently opened a freelance consulting company near State College, Pa. (http://cewbc.com). White's federal service included 8years with the U.S Navy, 14 years with the Environmental Protection Agency's Office of Water, and 11 years with the Walter Reed Army Institute of Research. For more details see: http://www.linkedin.com/pub/charles-white/22/aa0/b07

1982

Joel Fredrickson (M.S. 1982) currently lives in Reno, Nev., and is working on a Ph.D. in Computer Science.

1979

Peter Kerwin (1979 M.S.) retired from Tallahassee Community College in August 2013. He received his M.S. in Statistics from FSU in 1979 and started his teaching career while a graduate assistant at FSU, teaching Business Statistics.

After graduating from FSU, Kerwin spent a year teaching math and statistics aboard U.S. Navy ships in the Navy College Program for Afloat College Education (P.A.C.E.) out of Jacksonville, Fla.

He moved back to Tallahassee in 1980 and spent the next 10 years in state government, working as a statistician, an economist and as an analyst for the departments of Health, Children, Environmental Regulation, and the Governor's Office.

In 1989, Kerwin was hired as TCC's first full-time statistics Instructor where he taught both math and statistics until his retirement.

1972

Robert Clickner (Ph.D. 1972) retired from Westat in 2012 where he was an Associate Director and a senior statistician with more than 39 years of experience in the development, implementation, operations, and management of statistical and environmental research projects. After retirement,



Dr. Clickner and his wife Linda moved back to Tallahassee. Clickner has a courtesy appointment in the FSU Department of Statistics and taught our first honors section of Introduction to Applied Statistics in the 2012-13 academic year.

1968

Vasant Waikar (Ph.D .1968) retired from the Department of Statistics at Miami University, Oxford Ohio ,in December 2012 after 45 years of teaching.

RECENT GRADUATE NEWS

From 2008 to 2013, the Department of Statistics produced 50 Ph.D. students, which is a record number for the department. We are very proud of the high-quality graduates produced by the department in the past five years. Many master's and Ph.D. students in the department have published papers throughout the duration of their study in the department or within two years after their graduation. Our graduate students also received many prestigious awards during their study in the department. For example, Sebastian Kurtek (now an assistant professor at Ohio State University) received an FSU 2011-2012 Graduate Student Research and Creativity Award, which is presented to only five outstanding graduate students each year; and Jingyong Su (now an assistant professor at Texas Tech University) received the same award in 2012-2013. Jianchang Lin (now at the Takeda Oncology Company at Boston) received the 2012 SBSS Student Paper Competition for research on Bayesian methodology sponsored by the Section on Bayesian Statistical Science (SBSS) of the American Statistical Association (Lin was one of four winners of the competition to receive cash prizes and funding to present his paper in 2012 Joint Statistical Meetings JSM). In addition, Yuanyuan Tang (now at Eli-Lilly) received the International Biometric Society ENAR Distinguished Student Paper Award (cash prizes and funding to attend 2013 ENAR Spring Meeting and two short courses) in 2013. More info on student awards can be found on page 11.

RECENT PH.D. GRADUATES

2013

Rommel Bain

Affiliation: Florida Agency for Health Care Administration Thesis: Monte Carlo Likelihood Estimation for Conditional Autoregressive Models with Application to Sparse Spatiotemporal Data

Professor: Fred Huffer

Rachel Becvarik

Affiliation: University of Wisconsin, Platteville Thesis: Nonparametric Nonstationary Density Estimation Including Upper Control Limit Methods for Detecting Change Points

Professor: Eric Chicken

Seung-Yeon Ha

Affiliation: Florida Department of Education Thesis: Theories on Group Variable Selection in Multivariate Regression Models

Professor: Yiyuan She Ester Kim Nilles

Thesis: An Ensemble Approach to Predicting Health Outcomes

Professors: Dan McGee and Jinfeng Zhang

Kelly McGinnity

Affiliation: Institute for Defense Analyses Thesis: Nonparametric Wavelet Thresholding and Profile Monitoring for Non-Gaussian Errors Professor: Eric Chicken

Gretchen Rivera

Affiliation: Florida Gulfcoast University Thesis: Meta Analysis and Meta Regression of a Measure of Discrimination Used in Prognostic Modeling Professor: Dan McGee

Jingyong Su

Affiliation: Texas Tech University Thesis: Statistical Analysis of Trajectories on Riemannian Manifolds Professor: Anuj Srivastava

Yuanyuan Tang

Affiliation: Eli-Lilly

Thesis: Bayesian Methods for Skewed Response Including Longitudinal and Heteroscedastic Data Professors: Debajyoti Sinha and Debdeep Pati



2013

Yingfeng Tao

Affiliation: Consultant for Anova Law Group Thesis: The Frequentist Performance of Some Bayesian Confidence Intervals for the Survival Function Professor: Fred Huffer

Felicia Williams

Affiliation: Booz Allen Hamilton Thesis: The Relationship of Diabetes to CHD Mortality: a Meta-Analysis Based on Person-Level Data Professor: Dan McGee and Daniel T. Lackland (MUSC)

2012

Emilola Abayomi

Affiliation: Nova Southeastern University Thesis: The Relationship Between Body Mass and Blood Pressure in Diverse Populations Professors: Dan McGee and Daniel Lackland

Jordan Cuevas

Affiliation: Johnson & Johnson

Thesis: Estimation and Sequential Monitoring of Nonlinear Functional Responses Using Wavelet Shrinkage Professor: Eric Chicken

Jennifer Geis

Affiliation: Sequenom, San Diego Thesis: Adaptive Canoncial Correlation Analysis with Considerations for High Dimensional Matrices: A Weighted Rank Selection Criterion Approach with a HIV/NEU Professors: Yiyuan She, Florentina Bunea Paul Hill

Affiliation: Tallahassee Community College Thesis: Bootstrap Prediction Bands for Nonparametric Function Signals in a Complex System Professor: Eric Chicken

Sebastian Kurtek

Affiliation: Ohio State University, Department of Statistics Thesis: Riemannian Shape Analysis of Curves and Surfaces

Professor: Anuj Srivastava

Jianchang Lin

Affiliation: Millennium: The Takeda Oncology Co. Thesis: Semiparametric Bayesian Survival Analysis Using Models with Log-Linear Median Professor: Debajyoti Sinha

Daniel Osborne

Affiliation: Florida A&M University Thesis: Nonparametric Data Analysis on Manifolds with Applications in Medical Imaging Professor: Victor Patrangenaru

Jihyung Shin

Affiliation: Korea Info. Society Develop. Institute Thesis: Mixed-Effects and Mixed-Distribution Models for Count Data with Applications to Educational Research Data. Professor: Xufeng Niu

FSU statistics Ph.D.'s gather at JSM 2013 in Montreal. On the left from front to back: Jelani Wiltshire (2010), Vernon Lawhern (2011), Yu Gu (2011), Jianghua He (2007), Dimitre Stefanov (2007), Mahtab Marker (2007). On the right, from front to back: Prabhakar Chalise (2009), Jingyong Su (2013), Leif Ellingson (2011), Jihyung Shin (2012), Andrada Ivanescu (2008).

RECENT PH.D. GRADUATES

2011

2011

Lindsey Bell

Affiliation: Coastal Carolina University Thesis: A Statistical Approach for Information Extraction of Biological Relationships Professors: Xufeng Niu, Jinfeng Zhang

Matthew Dutton

Matthew Dutton

Affiliation: Florida A&M University Thesis: Individual Patient-Level Data Meta-Analysis: A Comparison of Methods for the Diverse Populations Collaboration Data Set Professor: Dan McGee

Leif Ellingson

Affiliation: Texas Tech University Thesis: Statistical Shape Analysis on Manifolds with Applications to Planar Contours and Structural Proteomics Professor: Victor Patrangenaru

Yu Gu

Affiliation: Boehringer Ingelheim Thesis: New Semiparametric Methods for Recurrent Events Data

Professor: Debajyoti Sinha

Vernon Lawhern

Affiliation: University of Texas, San Antonio Thesis: Statistical Modeling and Applications of Neural Spike Trains Professor: Wei Wu

Xiaoyun "Nicole" Li

Affiliation: Merck & Co. Thesis: Analysis of Multivariate Data with Random Cluster Size Professor: Debajyoti Sinha

Wei Liu

Affiliation: FareCompare, L.P. Thesis: A Riemannian Framework for Annotated Curves Analysis Professor: Anuj Srivastava

Greg Miller

Affiliation: Merck

Thesis: Investigating the Use of Mortality Data as a Surrogate for Morbidity Data Professors: Dan McGee, Myles Hollander Sentibaleng Ncube Affiliation: Nextera Energy Resources

Thesis: A Novel Riemannian Metric for Analyzing Spherical Functions with Applications to HARDI Data Professor: Anuj Srivastava

Kunle Olumide

Affiliation: Yale University Thesis: A Probabilistic and Graphical Analysis of O.J. Simpson's Murder Case Using Bayesian Networks Professor: Fred Huffer

Tamika Royal-Thomas

Affiliation: Winston-Salem State University Thesis: Interrelating of Longitudinal Processes: An Empirical Example Professor: Dan McGee Angi Tang

Affiliation: (

Affiliation: Capital One Thesis: A Class of Mixed-Distribution Models with Applications in Financial Data Analysis Professor: Xufeng Niu

Feng Zhao

Thesis: Bayesian Portfolio Optimization with Time-Varying Factor Models Professor: Xufeng Niu

2010

Muffasir Badshah

Affiliation: Department of Finance and Economics, Qatar University Thesis: Analysis of the Wealth Distribution at Equilibrium in a Heterogeneous Agent Economy Professors: Anuj Srivastava, and Paul Beaumont (Department of Economics)



Affiliation: Environmental Protection Agency Thesis: Nonparametric Estimation of Three Dimensional Projective Shapes with Applications in Medical Imaging and in Pattern Recognition Professor: Victor Patrangenaru

At JSM 2012, front from left to right: Jianghua He (2007), Xiaoyun Li (2011), Mahtab Marker (2007), Wenting Wang (2010), Anqi Tang (2011), Xufeng Niu. Back from left to right: Andrada Ivanescu (2008), Vernon Lawhern (2011), Fei Tan (2007), Sebastian Kurtek (2012)



RECENT PH.D. GRADUATES

2010

Yan Li

Affiliation: Mid-America Heart Institute

Thesis: The Effect of Risk Factors on Coronary Heart Disease; Age Relevant Multivariate Meta Analysis Professors: Daniel McGee and Yiyuan She

Zhi Li

Affiliation: Chase

Thesis: Multistate Intensity Model with AR-GARCH Random Effect for Corporate Credit Rating Transition Analysis Professors: Fred Huffer and Xufeng Niu

Wenting Wang

Affiliation: OSI Pharmaceuticals LLC Thesis: Some Methods for Design and Analysis of Survival Data

Professor: Debajyoti Sinha

Jelani Wiltshire

Affiliation: University of Rochester Medical Center Thesis: Age Effects in the Extinction of Planktonic Foraminifera: A New Look at Van Valen's Red Queen Hypothesis Professor: Fred Huffer

Sutan Wu

Affiliation: Food and Drug Administration Thesis: Goodness-of-Fit Tests For Logistic Regression Professors: Dan McGee and Jinfeng Zhang

Fang Yang

Affiliation: Vertex Pharmaceutical Thesis: Bayesian Generalized Polychotomous Response Models and Applications Professor: Xufeng Niu

Haiyan Zhao

Affiliation: JPMorgan Chase & Co. Thesis: Time-Varying Coefficient Models with ARMA-GARCH Structures for Longitudinal Data Analysis Professors: Xufeng Niu, Fred Huffer

2009

Nikolay Balov

Affiliation: StataCorp Thesis: Covariance on Manifolds Professor: Anuj Srivastava

Prabhakar Chalise

Affiliation: University of Kansas Medical Center, Kansas City Thesis: Time Scales in Epidemiological Analysis Professors: Dan McGee and Eric Chicken

Li Fan

Affiliation: Merck Research Lab Thesis: Estimating the probability of Cardiovascular Disease-- a Comparison of Methods

Professor: Dan McGee

Wenhao Gui

Affiliation: University of Minnesota Duluth Thesis: Adaptive Series Estimators for Copula Densities

Professor: Marten Wegkamp

Shuva Gupta

Affiliation: Northern Illinois University Thesis: A Study of the Asymptotic Properties of LASSO Estimates for Correlated Data Professor: Florentina Bunea Lanjia Lin

Affiliation: Novartis Pharmaceuticals

Thesis: Association Models for Clustered Data with Binary and Continuous Responses Professor: Debajyoti Sinha

Yang Liu

Affiliation: Merck Pharmaceuticals Thesis: Transformation Models for Survival Data Analysis and Applications Professor: Xufeng Niu

Moeti Ncube

Affiliation: Nextera Energy Resources Power Marketing Risk Management Division. Thesis: Stochastic Models and Inferences for Commodity Futures Pricing Professor: Anuj Srivastava

Jeanette Simino

Affiliation: Washington University, St. Louis

Thesis: Discrimination and Calibration of Prognostic Survival Models Professors: Myles Hollander and Dan McGee

Warren Thompson

Affiliation: AT&T Thesis: Variable Selection of Correlated Predictors in Logistic Regression: Investigating the Diet-Heart Hypothesis Professor: Dan McGee



Ph.D.s at JSM 2013: Jianghua He (2007), Jelani Wiltshire (2010), Leif Ellingson (2011), Michael Crane (2010), Jingyong Su (2013)

RECENT STUDENT AWARDS

The Yongyuan and Anna Li Award

The Yongyuan and Anna Li Award was created in 1997 in memory of Yongyuan Li, one of the Department of Statistics' promising Ph.D. candidates, who died from cancer. The Yongyuan and Anna Li Award is given each year to the graduate student who delivers the best student colloquium. The award includes a cash prize and recognition on a plaque in the Department of Statistics' Commons Room. This year's Yongyuan and Anna Li Presentation Award was shared by Senthil Girimurugan and Kelly McGinnity.

The Ralph A. Bradley Student Award

Initiated in 1979, the Ralph A. Bradley Award is for a Ph.D. graduating student who has demonstrated outstanding achievement. The award includes a cash prize and recognition on a plaque in the Frank Wilcoxon Memorial Reading Room. We present the R.A. Bradley Award to honor the Ph.D. student who defended his or her dissertation in the previous year and had the best dissertation. This year there was a tie with the prize goes to both Jingyong Su and Yuanyuan Tang.

Best First Year Student Awards

Each year, we give annual awards to those students (now in their second year) who did the best in the first -year courses in applied, theoretical, and computational statistics. This year these awards go to: Shuguang Zhang (in Applied Statistics), Junxian Geng (in Theoretical Statistics) and Gautam Sabnis (in Computational Statistics)

These winners will receive a one-time extra \$200 travel allowance (on top of our new \$600 student travel allowance) to attend conferences and present papers during their studies in our department (usually in the third through fifth years).

Best Graduate Teaching Assistant Award

Starting in all 2013, the Department of Statistics will also select two students for the Best Graduate Teaching Assistant Award. These winners will also receive a one-time extra \$200 travel allowance for attending conferences and presenting papers. The first two winners are Glenna Gordon and Xue Huang.

Florida Chapter of the ASA Student Award Winners

The Department of Statistics at FSU's award winners from the Florida Chapter of the ASA 2013 annual meeting were Qian Xie, Bagui Award; Yuanyuan Tang and Senthilbalaji Girimurugan, Lee Awards

Graduate Student Research and Creativity Awards

Sebastian Kurtek received an FSU 2011-2012 Graduate Student Research and Creativity Awards which Jingyong Su (now an assistant professor at Texas Tech University) also received in 2012-2013. This award is presented to only five outstanding graduate students each year.

Travel Awards

Qian Xie received a \$500 Congress of Graduate Students presentation award for her trip to Sydney, Australia to attend the 2013 Institute of Electrical and Electronics Engineers (IEEE) International Conference on Computer Vision (ICCV) . She also received a \$500 Ermine M. Owenby, Jr Travel Award from the College of Arts and Sciences at FSU for this trip, as well as a \$450 travel award from the ICCV organizing committee sponsored by IEEE.

Jose Laborde received an Institute of Electrical and Electronics Engineers, Bioinformatics and Biomedicine (IEEE-BIBM) Student travel award of \$800 in 2011 for the conference paper "RNA function prediction using elastic shape analysis". There was a 19 percent acceptance rate for regular papers for that conference, and Laborde won one of the few student travel awards and was one of the few selected from that pool to be invited to publish a paper in BMC Bioinformatics.

Dissertation Research Grant Award

Felicia Griffin received an FSU Dissertation Research Grant Award. The Dissertation Research grant award is a \$750 award paid by The Graduate School to assist doctoral students with expenses associated with research necessary to prepare dissertations.

2013 - 2014 Legacy Fellows

Two of our new students, Kelly Findley and Albert Steppi won Legacy Fellowships from FSU this year. This fellowship provides support for up to 5 continuous years for newly-admitted doctoral students in the form of a \$10,000 supplement to a 0.5 FTE assistantship (required) per academic year. Only 15 students across the university received the award this year.



Kelly Findley



Albert Steppi

FACULTY HIGHLIGHTS



Adrian Barbu

Adrian Barbu was promoted to Associate Professor in 2013. He was also awarded the Thomas A. Edison Patent Award by the R&D Council of New Jersey in 2011. He has 21 patents so far, the most recent five of which are:

1. A. Barbu; W. Zhang; N. Strobel; A. Galant; U. Bill; D. Comaniciu. Method and System for Catheter Detection and Tracking in

a Fluoroscopic Image sequence. Patent No. 8,396,533.

2. A. Barbu, M. Suehling, X. Xu, D. Liu, S.K. Zhou, D. Comaniciu. Method and System for Automatic Detection and Segmentation of Axillary Lymph Nodes. Patent No. 8,391,579.

3. W. Zhang, Y. Zhu, A. Barbu, R. Socher, S. Boehm, P. Durlak, D. Comaniciu. Methods and Apparatus for Virtual Coronary Mapping. Patent No. 8,355,550.

4. L. Lu, A. Barbu, M. Wolf, S. Lakare, L. Bogoni, M. Salganicoff, D. Comaniciu. Method and System for Polyp Segmentation for 3D Computed Tomography Colonography. Patent No. 8,184,888.

5. L. Lu, A. Barbu, M. Wolf, S. Lakare, L. Bogoni, M. Salganicoff, D. Comaniciu. User Interface for Polyp Annotation, Segmentation and Measurement in 3D Computed Tomography Colonography. Patent No. 8,126,244.

Most of Barbu's patents are owned by the Siemens Corporation as they were developed through his past collaboration with them. Dr. Barbu's current grant is a subcontract from the University of California, Los Angeles from the Mathematics of Sensing, Exploitation and Execution (MSEE) program of the Defense Advanced Research

Projects Agency (DARPA). The project title is "A Unified Foundation for Representation, Inference and Learning"... Barbu's research focuses on the areas of Computer vision, machine learning, and medical imaging.



Radha Bose



Victor Patrangenaru

Victor

Patrangenaru, who was promoted to full professor in 2010, was invited to participate in the 2013-2014 Low-Dimensional Structure in High-Dimensional Systems (LDHD) program sponsored by the Statistical and Applied Mathematical Sciences Institute (SAMSI). As a research fellow at SAMSI.

Patrangenaru will be away from campus in spring 2014 to participate in a Working Group on Data Analysis on Hilbert Manifolds and Their Applications competing. The Opening Workshop of this LDHD program was held at SAMSI in September, 2013.

In April 2013, Patrangenaru presented two talks in the Distinguished Speaker Series at Missouri Tech, and he was a speaker at the Leeds Annual Statistics Research Workshop in July, 2013. He was an organizer, chair, and speaker on the session on Analysis of 3D Scenes from Digital Camera Images at the Meeting of Statisticians in Budapest, Hungary in July, 2013. He was a member of the scientific and organizing committee of the International Conference "Differential Geometry and Dynamical Systems 2013", held in Bucharest, Romania, October 10-13, 2013. He is also currently organizing the session on Data Analysis on Stratified Spaces at the Second Conference of the International Society for Nonparametric Statistics, to be held in Cadiz, Spain, June 12-16, 2014.

Patrangenaru is the principal investigator on a new grant effective July 1, 2014-June 30, 2015, "Nonparametric Statistical Analysis of Spatial Scenes from Digital Camera Images", funded by the National Security Agency and is continuing work on his National Science Foundation grant, "Collaborative Research: Nonparametric Theory on Manifolds of Shapes And Images, with Applications to Biology, Medical Imaging and Machine Vision." He also recently revised a monograph, joint with Leif Ellingson (a 2011 FSU statistics Ph.D. grad now assistant professor at Texas Tech), Nonparametric Statistics on Manifolds and their Application.

Patrangenaru also recently developed a new course, "Object Data Analysis".

Radha Bose was promoted to Research Associate in 2013.

FACULTY HIGHLIGHTS



Professor Anuj Srivastava was selected for a one year "Faculty Appointee" position at the Statistics Division of the Information Technology Laboratory at the National Institute for Standards and Technology (NIST), Gaithersburg, Md. Over the past year, Srivastava also won a Siemens Best paper award, at the Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA) for the paper, "Elastic Symmetry Analysis of Anatomical Structures" (S. Kurtek and A. Srivastava, 2012). In addition, he received the IAPR/APRS Best Paper Award at Digital Image Computing: Techniques and Applications (for the paper "A Riemannian Elastic Metric for Shape-Based Plant Leaf Classification" (H. Laga, S. Kurtek, A. Srivastava, M. Golzarian and S. Miclavcic, 2012).

Associate Professor Jinfeng Zhang received the FSU Innovator Award in 2012 for patent disclosure: Automatic Bio-Entity Relationship Extraction Using Grammatical Relationship

Graphs. Zhang has created an online database: <u>http://integrativebiology.org</u>. Integrated Molecular Interaction Databse (IMID) is a database for molecular interaction information integrated with various other bio-entity information, including pathways, diseases, gene ontology (terms, species and molecular types. The information is obtained from several manually curated databases and automatic extraction from literature. Zhang's innovative research also led to his forming the company Innomedicine LLC.



Jinfeng Zhang

"In the past year, I continue to strengthen my core research area and also explore new areas with some promising results", Zhang said.

In Zhang's core research area, protein structures, he and colleague Leif Ellingson have published a paper in *PLoS ONE* "Protein Surface Matching by Combining Local and Global Geometric Information", PLoS ONE, 2012, 7(7): e40540.), which studied the matching of protein surfaces and applied the method to protein function prediction. Zhang and Ellingson's research was recognized more by other researchers both within the United States and internationally. They also obtained National Institutes of Health funding (NIH R21 as PI), which allows them to continue developing their statistical and mathematical framework for protein structure analysis and apply it to important problems such as protein function prediction and structure prediction. Zhang and Ellingson are also preparing a R01 proposal to continue this line of research. Three papers supported by this grants have been submitted, and one is in revision.

Another core research area, biological data mining and integrative approaches for systems biology, has also won an NIH grant (NIH R01 as co-PI), which supports Zhang's research for five years. He and Ellingson preparing two papers to be submitted soon.

I started working on cancer research, especially cancer genomics in the last year", Zhang said. "I am collaborating with Dr. Amy Sang from chemistry department of FSU and Dr. Zhiyong Cheng from Virginia Tech. We are working on some very interesting problems and have obtained some very promising results. We also made some very good progress in protein folding and structure prediction research in collaboration with Drs. Jun Liu and Sam Kou from Harvard. This is a very difficult problem. Our method is shown to perform better than previous methods."

Professor Xufeng Niu and Lindsey Bell (Ph.D. 2011) have developed an algorithm which was recently implemented statewide in the iBudget Florida system. The algorithm was developed as part of their research on the grant "Statistical Models for Predicting Resource Needs and Establishing Individual Budgets for Individuals Served by the Florida Agency for Persons with Disabilities," funded by Florida Agency for Persons with Disabilities (APD) in 2009-2010. On the new fund distribution system, APD Director Barbara Palmer said, "With iBudget Florida, we are providing a fair system that protects the health and safety of our customers while at the same time giving customers the ability to make choices to meet their current needs. Once people understand the flexibility of iBudget, they absolutely love it. The agency is very happy to offer this improved service to our customers."



SUMMER INTERNSHIPS

Ph.D. candidate **Tiffany Schleeter**: "I spent this summer working at the Institute for Defense Analyses (IDA) in Alexandria, Virginia as part of their annual Summer Associate Program. My research project was a simulation study for comparing estimators in ballistic limit testing. The current test design and estimator of V₅₀ in ballistic limit testing is highly customized and complex. With the purpose of improving the system, the current design was simulated and the current estimator was compared to several statistical models. Our task team was successful in discovering an improved statistical estimator and subsequently creating a useful test design for it that was simpler and more resourceful.

Overall, the experience was very humbling and educational. I was given an opportunity to become familiar with working in an industry setting and got to use statistical knowledge in another field. I gained a lot of practice in programming and even got to hang out with Kelly McGinnity (FSU DOS alum). Living in the D.C. area was exciting, there is so much to do there and there is a huge population of young professionals. I gained from my internship both professionally and personally and I cannot wait to go back."





both theoretical and computational statistics. It was great experience in an open corporate lab that encourages application motivated basic research and publications.

Ph.D. candidate **Qian Xie**: I interned at the Mitsubishi Electric Research Laboratories (MERL) in summer 2013. I did an explorative project with applying my knowledge on

Ph.D. candidate **Zhengwu Zhang**: I interned at EasilyDo and mainly worked on email classification and information extraction on the travel domain, like flight itinerary extraction, rental car information extraction and address detection, with machine learning and natural language processing algorithms. Classifiers are built to detect emails containing flight itinerary and car rental information, and information are extracted using template matching algorithms.



Zhengwu Zhang

SAS AT FSU

SAS CERTIFICATE PROGRAM

In 2009, the Department of Statistics at FSU began offering a certificate program in SAS Programming and Data Analysis in partnership with the SAS Institute. The SAS certificate program is offered to both undergraduate and graduate students. Since 2009, 35 undergraduate students and 27 graduate students have successfully earned their SAS certificates.

The SAS Certificate program was developed by Professor Dan McGee and Research Associate Steve Ramsier. To earn a certificate, students must complete an application form and complete a series of courses. Once students complete the SAS Program they are required to put together a capstone binder of the projects completed in the SAS courses. The student will be presented with a paper certificate and the certification will be reflected on their transcripts. The certification program is a great resource for students to use for job interviews, internships and even for research opportunities.



Ph.D. candidate received her SAS Certificate in 2013

The Department of Statistics' SAS Certificate program has been popular among other disciplines in Florida State University. Students from Economics, Psychology, Demography, and even Criminology have enrolled in SAS courses. The SAS Certificate Program has also become attractive to state employees as more state agencies recognize how powerful the SAS program is for data analysis. The SAS program is internationally recognized and perhaps one of the most used programs for data analysis. In 2013, Forbes ranked the SAS Institute #1 in the Best Companies for Work Life Balance. Monster.com has SAS listed as the #1 ranked skill to boost your annual earnings: http://career-advice.monster.com/salary-benefits/salary-information/best-paid-job-skills/article.aspx. CNN Money lists SAS programmer as one of the top 100 Best Jobs in America.

SAS JMP

In 2011 the Department of Statistics at FSU received approval to purchase a university site license for SAS JMP®. This allows the department to provide SAS JMP software to all faculty, staff, and students at Florida State University free of charge. So far over 100 people across the university have requested access for use in their dissertations, research, etc... We also use SAS JMP in several of our courses. Research Associate Steve Ramsier and some of his teaching assistants created video tutorials to help our students with JMP which they posted online. SAS JMP found these videos and placed a link on their JMP Learning Library website at http://www.jmp.com/academic/learning_library.shtml . Their site also references FSU Department of Statistics' JMP text and video tutorials http://stat.fsu.edu/tutorials/. The department also received an email from Seagate Technologies who mentioned that our video tutorials are implemented in their in-house training.

STATISTICAL CONSULTING CENTER

The Statistical Consulting Center at Florida State University is a long-run research assistance facility for the students, faculty, and staff at FSU. It is directed by Research Associate Steve Ramsier and staffed by a lead consultant and 2-3 other consultants each semester, all of whom are graduate students in the FSU Department of Statistics. The Statistical Consulting Center is a free service for members of the FSU community. When requested, clients from outside the FSU community are given at least a one-hour consultation. The Center also holds walk-in hours to assist clients on a first-come first-serve basis. Currently, the Consulting Center is also expanding to serve as analysts for grants needing statistical support. Services included but are not limited to:

Translating research questions and hypotheses into statistical terms Designing sampling procedures Choosing appropriate statistical methods Interpreting computer output Phrasing statistical results Referrals to other statistical help

In 2012-13 FSU Department of Statistics' consultants had over 100 appointments with about 70 percent of them being walk-in consults. The Student and Faculty clients came from more than 25 different departments on campus. Consulting Center staff are currently investigating open source customer relationship management software to help better keep track of clients and to provide more thorough and up-to-date reporting.

CONTRIBUTING TO THE DEPARTMENT

You may show your support to the Department of Statistics at FSU by contributing to one of our already established funds or by contacting Nancy Smilowitz, **Assistant Dean**, **Advancement and Alumni Affairs**, to discuss how to establish a named endowment or to find more information about making a tax-deductible gift. Nancy can be reached at :

Office 850-644-9324, Cell 850-294-1034, Fax 850-645-3258, E-mail: <u>nsmilowitz@foundation.fsu.edu</u>

Our Existing Funds:

The **Statistics General Development Fund** was created to provide general support for our department in a variety of areas.

The **Ralph A. Bradley Student Award** is named for our department's founder, Dr. Ralph A. Bradley. The award is presented to a graduating PhD student who has demonstrated outstanding achievement, culminating in the presentation of the best doctoral dissertation of the year.

The Yongyuan and Anna Li Fund was established by Anna Li in memory of her husband Yongyuan Li who died from cancer on April 7, 1997. The award consists of a cash prize and certificate and is presented to the graduate student who presents the best student colloquium each year.

The Ronald and Carolyn Hobbs Endowed Fund in Statistics was established by Ron Hobbs (MS '67) and his wife Carolyn. The establishment of this fund was used to create an endowed chair position which Dr. Debajyoti Sinha now holds.

Florida State University	Enclosed is my/our gift of 🔲 \$1,000 🔲 \$500
Department of Statistics	\$250 \$100 Other \$
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