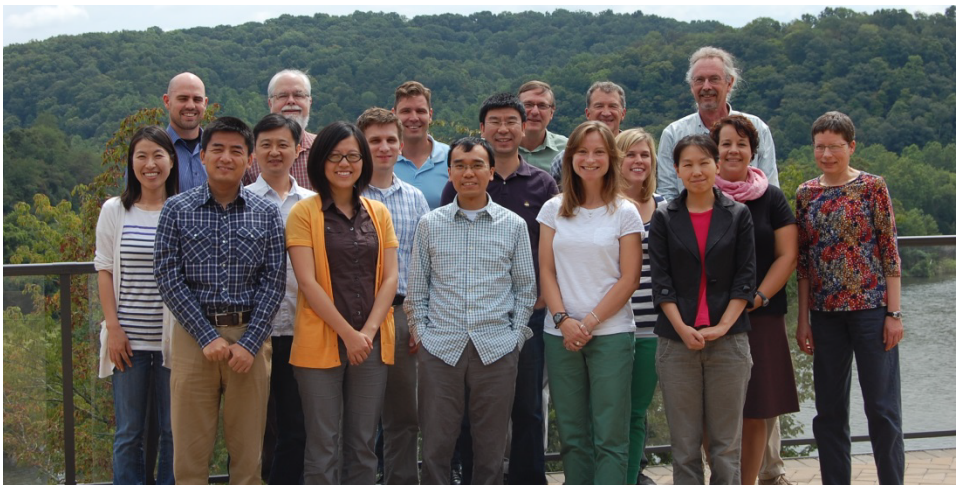




Department of Statistics, Virginia Tech

Statistics Newsletter

Fall 2013

Greetings

by Eric Smith, Department Head

Thanks to the hard work of faculty and students and support from alumni and university, we have had another good year. Our renovation project is progression; we hope to have new space by January of 2014. We continue to grow our programs and improve the department.

Thanks to your support our graduate program continues to improve and expand. Last year we graduated 15 Master's level students and 5 Ph.D. students. Our recruiting efforts continue to benefit from the devotion of our graduate coordinator, Jeff Birch; the financial support from our Corporate Partners program; and staff support from Christina Dillon. This fall we add 20 new students to our program for a total of 82 students.

Our undergraduate program continues to grow and we now have 90 undergraduate majors in the program. We have made several enhancements to the program to improve skills in programming, to better introduce new students to statistics through a first-year experience course and have revised the introductory course for majors. We also have a thriving minors program (65 minors) and actuarial science program (68 minors). The department graduated eighteen students last year. The department expects to graduate over 25 students in the spring, the largest class that I can recall.

Our Laboratory for Interdisciplinary

Statistical Analysis (LISA) continues to expand its services and training of our students. The program has expanded its short course selections. The article below by Eric Vance discusses some of the other enhancements to the program such as the LISA 2020 project to help train international collaborators.

Several faculty members in the department have been recognized for their research and service. Feng Guo and Scotland Leman were promoted to the Associate Professor level with tenure. Bill Woodall was honored with the late George Box as co-recipients of the First Annual Søren Bisgaard Award from the American Society for Quality for their paper "Innovation, Quality Engineering, and Statistics". Geoff Vining earned the NESC Engineering Excellence Award from the NASA Engineering and Safety Center (NESC).

The department continues to grow and has added two new faculty members this year. Runlong Tang joins us from a two-year postdoctoral position at the Princeton University. He brings expertise on high dimensional analysis and mathematical statistics. We are also pleased to have Sallie Keller join the department. She will head up the Social and Decision Analytics Laboratory in Virginia Tech's National Capital Region campus.

Finally, through your support we are able to help students through fellowships to entering and continuing students. The Rose Costain Award was given to Caleb King. The Harshbarger Award goes to Shuyu Chu and Yizhi



Sun. The Ray Myers award was given this year to Yizhi Sun for skill in linear models and experimental design. The Jean Gibbons award is in its sixth year and provides money to enhance the education of a top incoming graduate student. This year's recipient is Matthew Slifko. We are happy to announce the first awardee of the John Bartko Prize that recognizes excellence in statistical communication, collaboration and consulting. The award goes to Jonathan Stallings who is one of our outstanding collaborators. We are grateful for the financial support to help with the recruiting and training of our students. As you are aware, our students are facing continued financial stress and we hope that you are able to continue help support our programs. We can really use the support! Opportunities to contribute to various scholarships are described on the last page of the newsletter. Contributions to the general Statistics fund are also welcomed. And, don't forget to stop by for a visit if you are in the area. We'd love to see you if you are in the area!

Undergraduates

26 individuals received a bachelors of science degree in statistics this year. There are currently 90 students in the undergraduate program.

In Fall 2012, **Kim Roepe** graduated.

In Spring 2013, 21 undergraduates completed their degrees. They include **Prakash Adhikari, Eugene Alley III, Agata Bogacki, Stefanie Cain, Kathryn Campbell, Michelle Collura, Joseph Diaz, Michael Foust, Michael Gillespie, Keri Hoover, Joan Kearney, Samantha Lewandoski, Taylor Long, Bethany McGoff, Thomas Moss, Kaitlin Onthank, Christine Rand, Kevin Reynolds, Mitchel Ruloff, Andrea Teter, and Bing Jie Wu.**

In Summer 2013, **Amanda Aubuchon, Kelley Kline, Matthew Nenno, and Sarah Holloway** graduated.

The Whitfield Cobb Award is presented to the graduating senior with the highest academic performance overall. This year's recipients are **Mitchel Gillespie** and **Kaitlin Onthank**.

The Clyde Y. Kramer Award is presented to a graduating senior who has shown outstanding service to the University and the broader community. This year's recipient is **Kathryn Campbell**.

The Undergraduate Research Award is presented to a graduating senior who has outstanding work during an undergraduate research project. This year's recipient is **Michelle Collura**.



Scholarship Recipients

John H Kroehling Scholarship
Steven Hurwitt
Caleb Higginbotham

Marion & Charlotte Eckert Scholarship
Greg Lomaka
Hunter Carraway

Clyde Kramer Scholarship
Jonathan Ammirati

Undergrad Internships & Research

The department has placed an emphasis on training and research experience. This year ?? undergraduate students had internships or worked on research:

- **Carolyn Meier** – internship with PJM Interconnection in Audubon, PA
- **Elisabeth Adams** – internship with Network Insights in Chicago, IL
- **Jonathan Ammirati** – internship with (summer) and undergraduate research with LISA (fall)
- **Jack DiTrapani** – undergraduate research with LISA
- **Tyler Proctor** – internship with the Office of Assessment and Evaluation
- **Steven Buehler** – undergraduate research with Virginia Bioinformatics Institute
- **Claire Kelling** – undergraduate research with Virginia Bioinformatics Institute



Michael Gillespie receives the Whitfield Cobb Award.

Statistics Undergraduate Program

by Leanna House and Jane Robertson, Undergraduate Advisors

The Department of Statistics undergraduate program is looking forward to another great year. Our classes are in high demand, we have 60 minors, and 90 majors. Last spring, we graduated 21 students - our largest graduating class to date. We expect similar numbers this spring. Based on our enrollments, it is clear that Virginia Tech students increasingly understand the importance of statistics. In response, the department is making changes to improve the education of our students.

To motivate students to do well in our program and expose them to career options, we now offer a First Year Experience (FYE) course called Learning from Data. The course is not required, but most of our freshman statistics majors are enrolled. In this class, students will develop an intuition for what it means to learn from data and attend presentations by statisticians from varying applied fields, including actuarial science, product development, and pharmaceuticals. Also, the students will learn about important historical advancements in statistics that provide the foundations for what we do today. By teaching the history, we demonstrate that statistics is a dynamic, creative field which has evolved in response to research demands. Right now, statistics is adapting to the era of big data.

We plan to teach a new class in Spring 2013 called Intermediate Data Analytics and Machine Learning. Although this course is cross-listed with Computer Science and the new College of Science degree called Computational Modeling and Data Analytics, it was designed primarily by statistics professors. Topics covered in the course include supervised and unsupervised learning techniques that apply to big data. Statistics majors will be able to satisfy one graduation requirement by taking Intermediate Data Analytics and Machine Learning. We hope our students enjoy and find benefit from taking the course. We look forward to their feedback.

Finally, we made an old course new this year by revising STAT 3005, Statistical Methods. STAT 3005 is the first statistics course our majors take. In addition to applying simple inferential methods, STAT 3005 covers fundamental topics, including random variables, probability, data exploration, visualization, and sampling. Last year, an appointed committee assessed the curriculum for STAT 3005 and made decisions that will improve the education of our majors. Also, the course has a new textbook and relies on the statistical software R. Dr. Robertson is the inaugural professor in teaching our new STAT 3005.

To conclude, the undergraduate committee in the Department of Statistics is actively seeking and making improvements to the statistics major. In particular, we have two goals for 2013-2014 to prepare us for 2014-2015, at which time the Department of Statistics will evaluate and redesign its entire curriculum. First, we will appoint a committee to define formally what computation means for our majors and how we can include more computational thinking in our curriculum. Second, we will gather data from previous years to assess our undergraduate statistics program and policies. We will explore various predictors of student performance, including differences in performance by transfer and non-transfer students. We will use what we learn to make informed decisions as we design a new statistics curriculum in 2014-2015.



Jane Robertson, Eric Smith, and Leanna House at the spring graduation ceremonies.



Stefanie Cain shows off her HokieBird decorated hat at graduation.



Christine Rand poses with her parents at graduation.



M.S. Graduates

The Fall 2012 master of science graduates were **Liam Cryan**, **Mingqian Dai**, **Adam James** (working at Technomics, Inc as a Cost Analyst), **Rimy Malla**, **Ashley Nelson** (Statistician for Eastman Chemical.), **Amy Tillman** (Biostatistician with Statistics Collaborative, Inc.), **Edwin Tsay** (Quantitative Risk Analyst with BlackRock Alternative Advisors), **Joshua Washburn** (Statistician for Eastman Chemical), and **Chaoping Xie**. **Matthew Lanham** is continuing his Ph.D. in business information technology here at Virginia Tech.

In Spring 2013, master of science degrees were awarded to **Ahmad Alothman**, **Hao Lu**, and **Yi Xiong** (Household Survey Analyst with FINCA International). **Marcos Carzolio** is continuing as a Ph.D. student in the department.

In Summer 2013, **Ho Cho** was awarded her master of science degree.

Graduate Recruiting

Last spring, a record number of students applied for admission to our graduate program. In all, 217 applications were reviewed. Among those accepted into our program, our incoming class of 2013 consists of 18 students, eight on full TA support from the department and seven fully supported from other departments within VT. The 2013 academic year begins with 92 graduate students.

Our graduate students are very bright, inquisitive, energetic, enthusiastic, and excited about learning. Our program continues to grow with more faculty, more students, and more new courses. It is really a great time to be part of the Department of Statistics at Virginia Tech.

Ph.D. Recipients

In Fall 2012, three students graduated with their Ph.D.: **Zaili Fang**, **Chao Han**, and **Nels Gordon Johnson** (Postdoctoral Fellow in the Department of Biology at Colorado State University).

In Spring 2013, two students graduated with their Ph.D.: **Pei Xiao** and **Liaosa Xu** (Cost Analyst with Technomics, Inc.).

Details of their Ph.D. dissertations:

Zaili Fang (2012)

Title: Some Advanced Model Selection Problems on Nonparametric/Semiparametric Models for High Dimensional Data
Chair: Inyoung Kim

Chao Han (2012)

Title: Bayesian Visual Analytics: Interactive Visualization for High Dimensional Data
Chair: Inyoung Kim

Nels Johnson (2012)

Title: Semiparametric Regression Methods with Covariate Measurement Error
Chair: Scotland Leman

Pei Xiao (2013)

Title: Robust MEWMA-type Control Charts for Monitoring the Covariance Matrix of Multivariate Processes
Chair: Marion Reynolds

Liaosa Xu (2013)

Title: The Design of GLR Control Charts for Process Monitoring
Chair: Marion Reynolds

Overview of Awards

The Boyd Harshbarger Award is awarded for outstanding academic achievement by a first year graduate student. This year's co-recipients are **Shuyu Chu** and **Yizhi Sun**.

The Jesse C. Arnold Award is awarded for outstanding teaching by a graduate teaching assistant. This year's recipient is **Hamdy Mahmoud**.

The Klaus Hinkelmann Award is awarded for outstanding service by a graduate student to the department or university. This year's recipient is **Ana Ortega**.

The Raymond Myers Award is given to the top student in Linear Models and Experimental Design. This year's recipient is **Yizhi Sun**.

The Gibbons Statistics Award is given to an outstanding first year Ph.D. student in statistics. This year's recipient is **Matthew Slifko**.

The Rose Costain Award is given to an outstanding graduate student citizen in the Department of Statistics. This year's recipient is **Caleb King**.

The John Bartko Award is given for outstanding collaboration, communication, and consulting by a graduate student. This year's recipient is **Jonathan Stallings**.

Graduate Awards

by Jeffrey Birch, Graduate Program Director

To help recognize the important contributions made to our graduate program, the Department of Statistics annually presents six awards to our graduate students for their special contributions in the areas of academics, teaching, service, and citizenship. And this year will have a new award to present for excellence in statistical collaboration.

With these awards comes a certificate and the recipient's name is placed on a plaque, which is displayed outside the main office door. Two awards also include a book of the recipients' choice and five awards include a sizable financial gift, made possible by generous financial contributions from friends of the department.

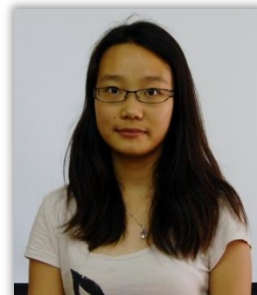
The Boyd Harshbarger Award is given annually for superior academic performance by a first year student. The award is named after our department's founder and first department head. The co-winners for superior academic performance by a first year student are Shuyu Chu and Yizhi Sun. One of the criteria for the award is grade point average. Shuyu had the only perfect gpa of 4.0 among all first year graduate students in all first year courses and Yizhi's gpa of 3.95 was nearly as perfect. Both obtained the highest scores on the spring qualifying exam. Due to the donations of the Harshbarger family, Shuyu and Yizhi will also receive a generous financial gift.

The Jesse C. Arnold Award is given annually for outstanding teaching by a graduate teaching assistant. Dr. Arnold was our department's second department head. The winner for outstanding teaching by a graduate teaching assistant is Hamdy Mahmoud. Last year, Hamdy taught one class for us with 91 students and achieved the highest rating among our TA teachers.

The Klaus Hinkelmann Award is given annually for outstanding service by a graduate student to the department. Dr. Hinkelmann was our department's third department head. The winner for the Hinkelmann award for outstanding service to the department is Ana Ortega. Ana has participated in a number of service activities within the department including the serving on the Corporate Partners Committee, chairing the Social Committee, serving as secretary/treasurer for Mu Sigma Rho, the national statistics honor society, and serving as a mentor of new graduate students to the department. She is always willing to serve as hostess for prospective graduate students and for visiting faculty.

A fourth award is named the Ray Myers Award and is given to the outstanding student in the linear models and design of experiments courses. Dr. Myers taught linear models and response surface methodology for many years in our department and used linear models and design of experiments heavily in his research and books. The winner of the award is Yizhi Sun. Yizhi was one for the top students in both the linear models course and the design of experiment course and had one of the top scores on this portion of the spring Qualifying Exam. The award includes a sizable financial gift.

The Rose Costain award is named after Rose Costain who worked in our department for 17 years as an administrative assistant for the graduate program and as an editorial assistant for two journals edited by departmental faculty, Biometrics and The Journal of Statistical Computation and Simulation. Her work helped to foster a friendly and caring attitude within the graduate program. The award is given to the graduate student for outstanding citizenship to the department. The recipient for the Rose Costain Award is Caleb King. The award includes a generous financial gift. Caleb helps insure that the department runs smoothly. He currently is serving as President of Mu Sigma Rho, the national statistics honor societv. He



Shuyu Chu



Yizhi Sun



Hamdy Mahmoud



Ana Ortega



Caleb King

Graduate Awards

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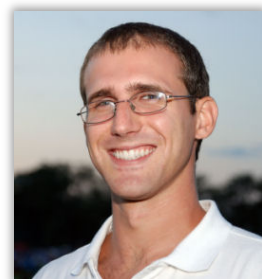
was Vice-President last year. He also is the Director of the Student Outreach Seminar (SOS) Series. Caleb is also member of the Corporate Partner Conference Committee for 2013. He currently is a TA Teacher for the department.

Recruiting top students is necessary to maintain the quality of our department. To help us in this regard, we have the Jean Dickinson Gibbons Statistics Award, made available by the generous contribution of Dr. Jean Gibbons and her husband Dr. Jack Fielden. Dr. Gibbons received her PhD from our department many years ago. This award is presented to the 2013 outstanding first year PhD candidate in statistics. The recipient of this award is Matthew Slifko. Matthew has a BS degree in mathematics from the University of Pittsburgh at Johnstown and a MS degree in applied math for Indiana University of Pennsylvania. The award includes a sizable financial gift.



**Matthew
Slifko**

The new award is the John Bartko Ph.D. '62 Prize in Statistics. The award is given for excellence in statistical collaboration, communication, and consulting by a graduate student within the Department of Statistics. The first recipient of the Bartko Award is Jonathan Stallings. Working in LISA for the 2012-2013 academic year, Jonathan was lead collaborator for over 80 projects. His work resulted in his being co-author on three publications, including first author on a paper recently published in the Proceedings of the National Academy of Science. Jonathan has been a strong advocate for collaboration and consulting. He presented a seminar to the department on LISA collaboration and participated as a panelist at the Joint Statistical Meetings on the use of video to improve the nontechnical aspects of client-consultant interactions. The Bartko award also includes a sizable financial gift.



**Jonathan
Stallings**

Graduate Internships

by Jeffrey Birch, Graduate Program Director

This summer 11 of our M.S. and Ph.D. students worked as interns for a broad variety of organizations. These students and their companies are:

- Matthew Keefe with Eastman Chemical Company
- Jennifer Cheng with Next Era Energy
- John Mulheren with Genworth Financial
- Angang Zhang with Microsoft
- Andy Hoegh with the Virginia Tech Carilion Research Institute
- Yajuan Chen with Zoetis
- Lin Zhang with the Nebraska State Government
- Yiming Peng with Workforce Development Service, Virginia Community Colleges System
- Lucas Roberts with Hartford Insurance
- Sarah Richards with DuPont
- Xiao Li with the Bank of China

As an intern, our students not only gain valuable experience as a practicing statistician but they are paid a competitive salary. Additionally, for each month of intern experience the student can receive one academic

credit that applies toward their degree. To receive academic credit the intern needs two mentors, a faculty member within our department and their work supervisor. The student must summarize their intern experience by writing a technical report on their work accomplishments and present their intern experiences in a seminar to the students and faculty of the department. These reports are evaluated and graded by their mentors. Thus, a summer internship can result in a three-credit graded course, one that can be used as an elective in the student's program of study.



Jennifer Cheng (left), who worked in the Quality & Analytics department at Florida Power & Light this past summer, sports a hard hat and goggles with two other interns during a visit to a substation near FPL's Martin County Solar Plant.



High school students work on a practice AP Statistics exam in order to prepare themselves for the real thing.



A speaker from Nielsen addresses the club about opportunities for statisticians in the real world.



The winners of the VT Statistics Award pose at the Virginia State Science & Engineering Fair.



A Virginia Tech student contemplates his next move in poker at the Casino Night.



Former president Jonathan Ammirati judges high school student's projects at the Archimedes Competition.



Professor Lemons and a student think about their next moves at a chess tournament in Maryland.

The Statistics Club

by Steven Hurwitt, Statistics Club 2013-2014 President

The Statistics Club at Virginia Tech is an organization dedicated to serving our community through the use of statistics. Club members strive to further the interest, knowledge and appreciation for statistics in the real world among those in the community and at Virginia Tech.

The 2012 – 2013 school year was very successful for the club, and we saw a record number of students show up for many of the events we hosted. In the fall we hosted a Casino Night where we invited Tech students to play a number of different card games, and taught them about the odds of getting certain hands. The club also has guest speakers who come to talk about their life in either the business or academic world, and how their knowledge of statistics can be applied in real-life situations. Guests included speakers from the data analytics company Nielsen.

In the spring the club judged and presented awards for the best use of statistics at multiple science fairs. The science fairs we helped out with included the Virginia Southwest Regional Science Fair, the Archimedes Competition, and the Virginia State Science &

Engineering Fair. We also created, advertised and administered a practice AP Statistics Exam to regional high school students. We simulated the testing conditions of the actual exam and graded the test based on the AP grading rubric. In conjunction with Professor Lemons and the Census Bureau, the club helped host a chess tournament for elementary school students in Suitland, Maryland.

If you are interested in joining an organization that uses statistics to help the community, and want to build strong networks with fellow students, professors and professionals then email Steven Hurwitt at shurwitt@vt.edu and join the Statistics Club!

2013-2014 Statistics Club Officers

Steven Hurwitt – President

Elizabeth Adams – Vice-President

Trish Foley – Secretary

Will DeShong – Treasurer

Joel Martinez – Public Relations Officer

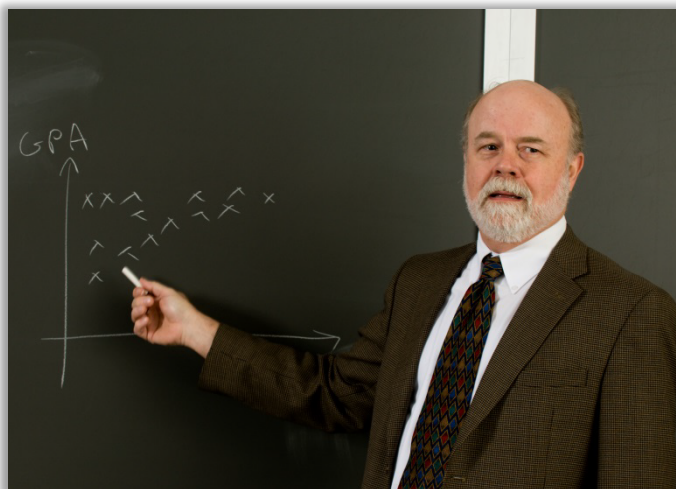
Jonathan Ammirati – Programming Officer

Professor earns first annual Soren Bisgaard Award

by Rosaire Bushey, College of Science

Bill Woodall, Professor of Statistics has been selected as co-recipient of the first annual Soren Bisgaard Award which recognizes the paper in the American Society for Quality journal, *Quality Engineering*, with the greatest potential for advancing the practice of quality improvement.

Receiving the award with Woodall is the late George E.P. Box, the world-renowned statistician who co-wrote the paper "Innovation, Quality Engineering, and Statistics" with Woodall. It was the last paper written by Box, who has his own namesake award, the Box Medal. The Box Medal is awarded to an extraordinary statistician who has made remarkable contributions to the development and application of statistical methods in business and industry. Woodall also received the Box Medal in 2012.



Bill Woodall, Professor of Statistics, earned the First Annual Soren Bisgaard Award from the American Society for Quality for a work he co-authored with George E.P. Box. Woodall also earned Box's namesake prize, the Box Medal, in 2012.

The collaboration on the paper was initiated by Box who called Woodall asking if he would be interested in writing a paper on innovation after Woodall's inquiry as to why Box had added the word "innovation" to the title of his seminal book on designed experimentation.

"Our collaboration will remain the highlight of my career," said

Woodall. "I found that Professor Box remained exceptionally bright at age 92. It is unfortunate he passed away before the award was announced, because he and Soren Bisgaard were close colleagues and friends."

Woodall received his masters and doctoral degrees in statistics from Virginia Tech in 1976 and 1980 respectively.

Mu Sigma Rho

by Marcos Carzolio

Virginia Tech is the home of the Alpha Chapter of Mu Sigma Rho, the national statistics honor society. In the past year, our chapter hosted two prestigious statisticians, Dr. Peter Bickel of UC Berkeley in the fall semester, and Dr. William Notz of Ohio State in the spring. Dr. Bickel spoke on the asymptotic properties of large networks. Dr. Notz gave a talk on the role of the statistician in the media. Following their presentations, students and faculty shared ideas with the guests at the post-colloquium receptions hosted at the houses of Dr. Birch and Dr. Vining. Both speakers were made honorary members of the Virginia



New members are initiated into Mu Sigma Rho

Tech Mu Sigma Rho chapter.

This academic year, we look forward to hosting two new distinguished speakers: ASA president Dr. Marie Davidian from NC State and Dr. Mike West from Duke. Both guests will draw from their rich backgrounds in statistics to present to the members of our community the recent advances in their fields of research. Particularly, Dr. Davidian will speak on

estimating optimal treatment regimes for personalized medicine. The details of Dr. West's presentation will be announced in the weeks leading up to his talk. The Alpha Chapter of Mu Sigma Rho is proud to continue its tradition of bringing leaders in the field of statistics to department events and exposing them to our bright young graduate students and exceptional faculty.

On-the-ground statisticians return to Mozambique

by Eric Vance

Having learned from previous statistical collaboration projects that a useful analysis of survey data requires useful survey data, LISA (Laboratory for Interdisciplinary Statistical Analysis) sent two statisticians back to Mozambique during the summer of 2013 to work as on-the-ground statisticians the Millennium Challenge Corporation's (MCC) Rural Water Supply Activity impact evaluation.

Our team's job was to evaluate the impact of the MCC's water project that drilled boreholes and installed handpumps in villages that lacked access to clean water.

In 2011, graduate student Mark Seiss and LISA Director Dr. Eric Vance traveled to Mozambique before the handpumps were installed to help design the baseline study; create a sample frame and sample of communities that would or would not receive a handpump; write the survey questions asking households in the communities various questions about water, sanitation, health, education, and income; train the Mozambican survey enumerators; and ensure that they collected high quality data that could be

statistically analyzed.

This past summer, Dr. Vance returned with graduate student Marcos Carzolio to help implement the follow-up study to see what changed in the communities that did or did not receive a handpump.

Once again, the work done in Blacksburg to determine which communities ought to be classified as treatments (having received a handpump) or comparisons (not receiving the handpump intervention) was mostly worthless. It wasn't until we had people on the ground (who took pictures of the handpumps) that we learned whether or not a community actually got a handpump and therefore if those data should be considered as part of the treatment or comparison groups.

And once again, it was invaluable to include on the research team an on-the-ground statistician who understood the study design, the survey, and the data analyses options. Marcos's main job was to review the survey data and give feedback to the enumerators on a daily basis so that any data values that didn't make sense were double checked in the field within



Marcos Carzolio explains the sampling plan to a Mozambican statistician.

days of collection.

Because of the great work done by Marcos (and Mark before him), we have two excellent datasets, a baseline and a follow-up, that will enable us to determine the impact of installing handpumps in villages without access to clean water.

To learn more or to find out what the impacts of the water project actually were, follow the LISA blog at www.lisa.stat.vt.edu/?q=blog.



Marcos Carzolio participates in the first day of enumerator training.



Dr. Eric Vance show a family pictures he took of them during the baseline study in 2011.



Marcos Carzolio works as an on-the-ground statistician with a survey team leader.

Olushina Olawale Awe Selected as the First LISA Fellow

The LISA 2020 Fellows selection committee announced today that after reviewing 108 applications, Olushina Olawale Awe from Obafemi Awolowo University, Ile-Ife, Nigeria has been selected to serve as the first LISA Fellow. Awe will travel to Virginia Tech in August to begin his one year training.

The LISA Fellow position, which was advertised for less than a month, received 108 applications from 34 different countries. Applicants were rated based on their personal qualifications and passions, their university/institution's need for a statistical collaboration lab, and the support they will have in their home country to create and sustain a statistical collaboration laboratory. Six finalists were sent for outside review and comments.

Awe has been a statistician and lecturer at Obafemi Awolowo University for the past three years and is pursuing a PhD in Statistical Science at University of Ibadan, Nigeria. His enthusiastic application included a detailed plan for the development of a statistical collaboration laboratory modeled after LISA that included plans for training future collaborators. His

hardworking nature was revealed through his impressive curriculum vitae and letter of support. Awe has a strong desire to collaborate with non-statisticians to improve research toward alleviating the most common societal problems in developing countries, especially Nigeria.

As the LISA Fellow, Awe will serve as a LISA Collaborator meeting with LISA clients—Virginia Tech faculty, staff, and student researchers—to assist them with designing experiments, analyzing and plotting data, running statistical software, interpreting results, and communicating statistical concepts to non-statisticians. In addition to collaboration meetings, he will teach three two-hour short courses that focus on helping graduate students learn to apply statistics in their research and will serve as a LISA Walk-in consultant to answer quick questions and to help with research projects requiring less than 30 minutes of assistance.

Awe will be trained to become a collaborative statistician so that when he returns to Obafemi Awolowo University, he will be prepared to create a statistical collaboration laboratory to help researchers, government officials,



Olawale Awe from Obafemi Awolowo University in Ile-Ife, Nigeria

local industries, and NGOs apply statistical thinking to make better decisions through data.

LISA 2020 is a special project of LISA (Virginia Tech's Laboratory for Interdisciplinary Statistical Analysis) to educate and train statisticians and data scientists from developing countries to communicate and collaborate with non-statisticians and become collaborative statisticians. Our goal is to support these newly trained collaborative statisticians to create a statistical collaboration laboratory at their home university or institution and build a network of 20 statistical collaboration laboratories in developing countries by 2020.

Vining Earns NASA Award

Geoff Vining has earned the NESC Engineering Excellence Award. Vining was chosen for this award for assisting NASA and NESC teams and individuals continuously improve and stretch boundaries in mathematical analysis of real data and in efficient test planning.

The NASA Engineering and Safety Center (NESC) will present the award at their NESC Fall Face-to-Face Meeting.



Congratulations to Geoff Vining who earned the NESC Engineering Excellence Award

Welcome to the New Faculty

by Eric Smith

The Department is delighted to announce that we have added two new faculty members to our growing department. Runlong Tang has joined us this semester as a new tenure-track assistant professor. Runlong obtained his Ph.D. from the University of Michigan working under George Michailidis. His dissertation was Shape-Restricted Nonparametric Estimation and Design Problems.



Following graduation, he worked as a postdoc under Jianqing Fan at Princeton University. Runlong's research interests include high dimensional analysis, variable selection, penalized estimation and mathematical statistics. He has two publications in the Annals of Statistics, one on inverse regression and one on likelihood based inference.

The Department also welcomes Dr. Sallie Keller. Dr. Keller comes to us from the University of Waterloo where she was a professor and Provost. She is an expert on statistical issues related to privacy and policy. Her service record is extensive and includes considerable service to the American Statistical Association, the National Academy of Science and the American Association for the Advancement of Science. She is a fellow of the ASA and AAAS, and an elected member of ISI. Dr. Keller brings expertise in the



cutting-edge areas of uncertainty quantification, computational and graphical statistics and related software and modeling techniques, and data access and confidentiality. She will be the director of newly formed Social and Decision Analytics Laboratory which is part of the Virginia Bioinformatics Institute and is located at our Northern Virginia Campus.

Corporate Partners Program

by Golde Holtzman

The fourteenth annual Virginia Tech Department of Statistics Corporate Partners Conference is planned for October 31 through November 2, 2013. In addition to our continuing corporate partners—**Capital One**, **DuPont**, **Eli Lilly**, **General Electric**, **Minitab**, and **SAS**—we will be welcoming three new partner, **American Credit Acceptance**, **Eastman Chemical**, and **Google**. **ACA** is a South Carolina finance company that will be represented by alumnus Todd Manke. **Eastman Chemical**, located in Bristol Tennessee, populated by many alumni of our department (Arved Harding, Ashley Nelson, Josh Washburn, and others) is formalizing the strong relationship we've enjoyed for several decades. And **Google**, a Silicon Valley internet company you may have heard of (ha ha), home to alumnus Sundar Dorai-Raj, has become a partner by virtue of innovative collaboration with Professor Eric Vance, director of LISA.

This year, in support of our strategy of vertical integration of students, faculty, corporate partners, and alumni, we are enhancing the role of undergraduates. An undergraduate is serving on the organizing committee, and all juniors and seniors will be invited to our regular activities—the welcoming reception, partner presentations, the MSR seminar, and interviews for internships and professional positions. As in past conferences, partner representatives will meet with faculty as an advisory committee for strategic planning of curriculum and research initiatives, and they'll meet privately with Dean Lay Nam Chang in the new office of the College of Science. Student leadership continues to grow as well—this year by Rebecca Dickinson, Ana Maria Ortega Villa, Lin Zhang, Stats Club president Steven Hurwitt, and Mu Sigma Rho president Caleb King. Finally, we thank Geoff Vining, for serving on the Corporate Partners Committee, and Mary and Bill Woodall, for hosting the welcoming reception at their lovely home. For further information about the corporate partners program, see the website, or contact Golde Holtzman (holtzman@vt.edu, 540-239-2949).

Mu Sigma Rho Student Research and Collaboration Seminar

Ph.D. Research

Xinran Hu,

Visual to Parametric Interaction on Multidimensional Scaling

Han Li,

A Varying Coefficient Model for Daily Stream Temperatures

Lucas Roberts,

Scaling Decision Trees Using the ALoVaS Method

LISA Collaborations

Marcos Carzolio,

Beyond Consulting: Training to Become an Interdisciplinary Statistical Collaborator

Emanuel Msemo,

Statistics in Practice: My Plan

Alumni News: An Illustrious Career: John Bartko, Ph.D., 1962

by John Bartko

I had the opportunity to visit the VPI campus earlier this year. Yes, I know it is Virginia Tech now, but for me it was and will be VPI. The familiarity of Henderson Hall Statistics and Wall Street, where I resided with “Grandma” Crabill, brought back fond memories of days of study and hard work toward the master’s (1961) and doctoral (1962) degrees. After graduation from the University of Florida in January 1959 with a B.A. in mathematics, I entered VPI in the March quarter, playing catch-up with the students who already had had two quarters. That summer a group of us on National Institute of Health (NIH) fellowships spent the summer at the Medical College of Virginia as part of our fellowship requirement. That was my first introduction to medical research and the role that NIH played in this important field. Along with the statistical seed, a medical one was planted, and NIH was destined to become my career location. My M.S. thesis was on the negative binomial distribution (NBD), which proved to be useful in my NIH career. That NBD work also spawned about seven or so additional theses in the department. The head of the department, Boyd Harshbarger, was very good at “encouraging” students to become involved with the Virginia Academy of Science. He guided me on my first publication as a student, reporting on my M.S. work on the NBD. My Ph.D. dissertation was on a genetic model of P.A.P. Moran’s.

I joined the National Institute of Mental Health (NIMH at NIH) in Bethesda in 1962. I was hired by Don Morrison, who was at VPI

finishing his Ph.D. and working at NIMH. I was really lucky. It aggravates my wife—in a nice way—that I never had to look for a job. My thought at that time was that I would work at the NIH as a US Public Health Service (USPHS) commissioned officer to fulfill the two-year military obligation and then go to a university. Some thirty-three years later, I retired from the NIMH, still in the USPHS, as a career officer in the Commissioned Corps.

At NIMH the chief of my branch was Sam Greenhouse, author of many publications, one of the most notable of which was the “Analysis of Profile Data” with Seymour Geisser, an ANOVA approach to repeated measure multivariate data. Others of the NIH giants, as they became known, were Jerry Cornfield of early Bayesian fame and Nathan Mantel of the Mantel-Haenszel test. These NIH statisticians were loudly passionate about statistics. The decibel level when they discussed statistics was at rock concert level. For someone very green behind the ears, this was heady statistical living, to be sure!

My title at NIMH was Research and Consulting Statistician. I collaborated with physicians, psychiatrists, psychologists, as well as researchers in other field of medicine. I grew to love the thrill of statistical consulting working on problems of paramount importance in the medical field. The stimulus of changing my mental set several times during the day really kept the statistical juices flowing. These consultations led to many exciting educational ventures and



John Bartko in his Commissioned Corps dress uniform.

publications. Since much mental health data is rater-observational rather than “hard” and multivariate in nature, its reliability or reproducibility is of paramount importance. Thus it is important to know how well the raters are performing. While agreement among raters is no guarantee of correct assessments, nevertheless if ratings are not reproducible by others then reliability issues cloud the results. Methods of assessing rater agreement became one of my interests and led to publications on the theory and measures of reliability in areas such as the intraclass correlation coefficient. Another major interest was cluster analysis. Most of my work was in the diagnosis and treatment of schizophrenia. Collaborations resulted in numerous publications. I was one of the collaborating investigators for the World Health Organization’s nine-nation International Pilot Study of Schizophrenia.

I became an ASA Fellow in 1973, was adjunct professor of statistics at the University of Maryland

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School of Medicine, statistical editor of the American Journal of Psychiatry for fifteen years, and chairman and professor at the NIH Graduate School Department of Statistics.

I love to travel to Slovakia. I grew up in Florida in a town of Slovak speakers, and Slovak was my first language. I have been to Slovakia five times now, and I enjoy that heritage and visiting my father's village and the relatives there. After my retirement a fellow officer and I co-founded the USPHS Music Ensemble, for which I served as executive director until from 1999 to 2006. The ensemble grew from a group of eight musicians, all volunteer officers in the DC area, to more than 125 singers and instrumentalists, still all volunteers and now from all over the US. They have earned the title of the "Surgeon General's Own" and have performed annually at the WWII Memorial on the National Mall, sung the National Anthem at Nationals' baseball games, and appear at official functions.

My honors include Phi Beta Kappa while at the University of Florida and Pi Mu Epsilon and Sigma Xi at VPI, the 1979 Stanley Dean Award for Schizophrenia Research, which I shared with two colleagues, and the Distinguished Service Medal and Surgeon General's Exemplary Service Medal from the US Public Health Service Commissioned Corps.

I am a life member of the ASA and, after a wait of more than 45 years for the ASA to establish the accreditation program, I became a pStat in 2011. I continue to do biostatistical consulting from our home in Pennsylvania where Mary Kay and I live with our rescue cat, Cokie.



John Bartko with his wife Mary Kay.

John Bartko is the sponsor for a new award given for excellence in statistical collaboration, communication, and consulting by a graduate student within the Department of Statistics. The first recipient of the Bartko Award is Jonathan Stallings. Read more about Jonathan on page 6.



Jonathan Stallings assists a graduate student during LISA Walk-In Consulting. Nominated by clients, Jonathan was selected as the 2012 Outstanding LISA Collaborator of the Year.



Thomas Moss poses for a "selfie" with his advisor Jane Robertson.

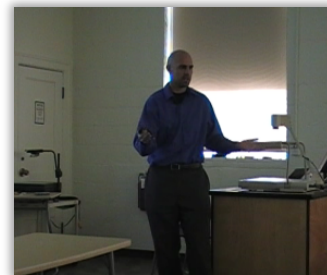


Eric Smith welcomes guests and congratulates graduates at a full auditorium at the spring 2013 graduation ceremony.



Faculty and students prepare for a float down the New River at the annual First Year Float to welcome new students.

Eric Vance hosts the International Year of Statistics Colloquium on the LISA 2020 project.



Please note that, though our location remains the same, we have an updated address.

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Contributing to the Department

by Eric Smith

The faculty have worked hard to improve the program over the last four years. Our success has been greatly enhanced by the generous support of alumni and friends. We are extremely grateful for contributions from Jean Gibbons, Ray Myers, John Costain, and John Bartko.

We can greatly benefit from your

support regardless of the size of the contribution.

If you wish to discuss opportunities for supporting graduate students or faculty through your contributions please feel free to give Eric Smith a call.

Your support and encouragement is greatly appreciated!

To contribute, detach the form below and mail it to the Office of University Development with your contribution or visit our website for an online donation form (www.stat.vt.edu/about/stat-giving.html). For more information or to learn about other ways to give, please contact Jenny Orzolek, Director of Development for the College of Science, by phone at (540) 231-5643 or by email at jorzolek@vt.edu.

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