NISS

Parameters

A quarterly newsletter from the National Institute of Statistical Sciences

Dr. Susan Ellenberg New Chair of the Board of Trustees for NISS

Dr. Susan Ellenberg is taking over as chair of the Board of Trustees for NISS. Susan is Professor of Biostatistics and Associate Dean for Clinical Research at the Perelman School of Medicine at the University of Pennsylvania.

Like most statisticians, Susan has a very interesting story as to how she decided to make statistics her career. Originally, she thought she wanted to be a teacher and in high school she realized she had a special talent for mathematics, so after college, she got a Master's degree from the Harvard Graduate School of Education in teaching, specializing in mathematics. She taught math to high school students for a few years before her children were born. Her husband, Jonas, was already working as a statistician at the National Institutes of Health in Washington DC. A graduate school classmate of his, Janet Wittes, was then working for the eminent biostatistician Jerome Cornfield, and they needed someone to help them with some computer programming.

Susan said they got her an IBM 2741 Selectric typewriter with a 30 baud modem (this is back in 1971, long before most people had modems or personal computers) so she could connect with the servers at George Washington University from her home while her children were small.

After working on this project for about 6 months, Susan decided she should learn more statistics, so she started to take some courses at George Washington University; before she knew it, she was in the Ph.D. program. She completed her Ph.D. while continuing to work on projects at the GWU Biostatistics Center under Cornfield's leadership.

In 1979, just prior to receiving her degree, she took a position in cancer research for a National Cancer Institute (NCI) funded cooperative group, and then moved to the NCI in the Cancer Therapy Evaluation Program in 1982. In 1988 she was recruited as the first biostatistics branch chief in the Division of AIDS at the National Institute of Allergy and Infectious Diseases, where she worked on new drug trials for HIV/AIDS at a time when AIDS research was just getting off the ground. These were very exciting years in which statisticians played a major role in helping develop efficient but still rigorous approaches to clinical trials of new agents.

In 1993, Susan became the Director of the Office of

Susan Ellenberg is the new chair of the NISS Board of Trustees.

Biostatistics and Epidemiology at the Center for Biologics Evaluation and Research at the Food and Drug Administration (FDA). After 12 years at the FDA she joined the Division of Biostatistics in the

NISS Calendar of Events

Nonclinical Biostatistics Workshop
October 18-20, 2011 at Joseph B. Martin Conference Center, Harvard Medical School in Boston, MA.
NISS is a co-sponsor of this event.
Details here.

NISS Annual Meeting
November 4-5, 2011 at NISS headquarters in RTP, NC

Ellenberg - Continued

From page 1

Perelman School of Medicine at the University of Pennsylvania in 2004.

"I think the field of statistics needs to do a better job of telling our story to students when they are younger. Many students in middle school may already be thinking of having a career in engineering, or computer science, but I doubt you'd find many students are thinking of a career in statistics at that age," comments Susan.

Susan has two roles at the University of Pennsylvania; she is a Professor of Biostatistics, which involves teaching and advising students as well as doing collaborative research, and is also the Associate Dean for Clinical Research for the Perelman School of Medicine with responsibility for overseeing the School's human subjects protection programs. She is currently working as the primary statistician on three very

different multi-center clinical trials. One is a pediatric trial evaluating the role of adenotonsillectomy in children with obstructive sleep apnea; one is looking at the effect of testosterone treatment in men over 65 who have abnormally low levels of testosterone; and the third is studying the potential for drug treatment to prevent an inflammatory complication of standard antiretroviral therapy in HIV-infected individuals.

She also serves at the director of the Biostatistics Core for the Penn Center for AIDS Research, one of 17 such Centers funded by NIH to provide support services for investigators doing HIV research.

Susan joined the NISS Board of Trustees in 2009 and is still getting familiar with the organization. Susan said that it is too early for her to speculate on where NISS is headed in the future, but pointed out four areas that the Board will

be looking at closely. The first is the financial situation. Just as many nonprofits have struggled during this recession, NISS is also experiencing a few bumps along the road and it is the Board's responsibility to see that we navigate through the obstacles that may arise. The second is following the progress of the new office in Washington DC, which was established to facilitate connections between NISS and federal agencies. The third issue is assisting with SAMSI's grant renewal application and to maintain the collaboration and great synergy that exists between NISS and SAMSI. The fourth area that the Board will focus on is the Affiliates Program. The affiliates are very important to NISS and the Board is interested in ensuring that the Program provides value to all of its affiliates and will be looking for ways to enhance the Program.

Donate to the NISS Fund

Gifts of any size to the NISS Fund enable us to increase our value added to the community, such as helping us pursue new research opportunities, fund a postdoc to attend important workshops and meetings, or for NISS to conduct a new research workshop. Please visit our website at www.niss.org to make your contribution. Your generosity is so greatly appreciated!
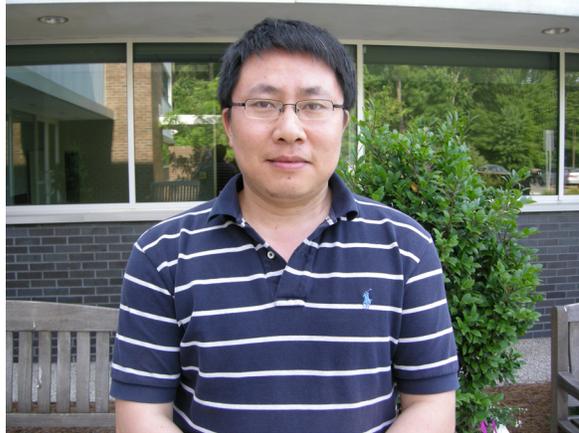
Former Postdoc Profile:
Xiaodong Lin

Xiaodong Lin recently attended SAMSI's Complex Networks Transition workshop and stopped by the NISS offices to say hello and catch up with the staff. Xiaodong was a NISS postdoc from 2003-04 and worked on the data mining and the data confidentiality projects while he was at NISS.

Xiaodong grew up in Fujian, China and went to college at the University of Science and Technology of China (USTC) where he earned his Bachelor's degree in Computer Science. He focused much of his undergraduate study on mathematics and theoretical computer science and developed a growing interest in statistical machine learning. He decided to pursue his advanced degrees in statistics at Purdue University in 1997 where he became increasingly fascinated by the challenges that arise when analyzing massive datasets. His Ph.D. thesis consisted of two components: one was on mixture models for local dimension reduction, and the other was on privacy preserving data analysis in a distributed environment. Given his research interests, Xiaodong noted, "The combined NISS and SAMSI postdoc position that involved both the data confidentiality project and the SAMSI Data Mining and Machine Learning program was

really a golden opportunity for me. I had heard about Alan's work in data confidentiality when I was at Purdue, so I was really quite excited to come to work for NISS." Though Xiaodong had already been offered a job at the University of Cincinnati, the department readily agreed to let him take a year off to work at NISS.

While at NISS, he researched how to maintain data confidentiality in a distributed environment. With the digital government research team, he developed a host of privacy preserving protocols for distributed linear regression, classification, clustering and Maximum Likelihood Estimation, which led to multiple publications in premier journals. Meanwhile, his participation in the SAMSI Data Mining and Machine Learning program also resulted in many collaborative works.

"I had one of the best years when I was at NISS," remarked Xiaodong. "It is an intellectually

free environment. You interact with numerous postdoc fellows, faculty and graduate students to build potential research collaborations. Many of them have also become lifelong friends. A large part of my collaborative works originated at NISS and SAMSI, not only from the time I spent there, but also from when I've come back to participate in workshops."

Xiaodong moved to New Jersey to take a position at Rutgers University in the School of Business. He married in 2008 and had a little girl, Talia, last October. He came to SAMSI to attend the Complex Networks Transition Workshop because part of his research has been on statistical models for learning brain connectivity networks. He is collaborating with scientists at the Cincinnati Children's Hospital on a large-scale study to understand developmental changes on brain connectivity for narrative comprehension. He also works with neuroscientists at University of Medicine and Dentistry of New Jersey to develop statistical models to study resting state brain networks. At Rutgers Business School, he is developing more flexible convex optimization techniques for analyzing ultra high dimensional data, as well as statistical dynamic models for high frequency trading.

Cox, Karr and Kinney Publish a Paper in International Statistical Review

Lawrence Cox, Alan Karr and Satkartar Kinney have just published a paper entitled "Risk-Utility Paradigms for Statistical Disclosure Limitation: How to Think, But Not How to Act" in the *International Statistical Review*, the flagship journal of the International Statistical Institute. The paper argues that prevailing risk-utility formulations for problems of statistical disclosure limitation (SDL), while powerful guides to official statistics agencies in regard to how to think about disclosure limitation problems, often do not provide a sound basis for acting upon the problems. They illustrate this position in three specific contexts—transparency, tabular data and survey weights, with shorter consideration of longitudinal data and the use of administrative data to augment surveys. The paper is accompanied by discussions by four eminent researchers in SDL: Josep Domingo-Ferrer (Universitat Rovira i Virgili, Spain), George Duncan (emeritus, Carnegie Mellon University), Christine O'Keefe (CSIRO, Australia) and Natalie Shlomo (University of Southampton, UK), as well as a rejoinder from Cox, Karr and Kinney.

An abstract of the paper can be found at http://onlinelibrary.wiley.com/doi/10.1111/j.1751-5823.2011.00140.x/abstract

Xiaodong Lin - Continued

Xiaodong's research continues to grow, but he counts his year at NISS as instrumental in developing his role as a statistician. "When I look at myself today," Xiaodong remarks, "it is apparent that my time at NISS has greatly influenced my research career and will continue to do so in the future."

Presentation on De-Identification of Confidential Health Data Selected as Best of ARM 2011

Alan Karr was a panelist at the Annual Research Meeting (ARM) 2011. He and his colleagues' presentation was selected as one of the best of ARM. Karr's co-presenters included Kimberly Lochner, National Center for Health Statistics, Daniel Barth-Jones, Columbia University and Wayne State University, Deven McGraw, Center for Democracy and Technology and Laura Zayatz, U.S. Census Bureau. Their presentation was entitled, "De-Identification of Confidential Health Data: Principles, Methods and Policy."

AcademyHealth is a society for health services researchers and health policy analysts. Its Annual Research Meeting has been the premier forum for health services research for the past 28 years. This year's forum was held in Seattle, WA.

The panelists introduced the principles and methods for de-identifying health microdata in accordance with HIPAA requirements. Statistical de-identification seeks to protect the privacy of individuals in health care data and preserve the utility and accuracy of statistical analyses performed with de-identified data. The presentation introduced the principles and methods for de-identifying health data in accordance with HIPAA. They also looked at ways to protect the privacy of individuals and preserve the utility and accuracy of statistical analysis using statistical de-identification. The panel discussed the challenges in trying to achieve both privacy and preserving the statistical accuracy.

This is an important issue because if people feel that their information is not confidential, they will engage in privacy-protective behaviors to avoid having their information used inappropriately, and they may lie, or not share important information. The researcher must make a decision point as to how much information to release and how much to keep confidential, so that the research will still have meaning, but not identify individuals.

The presentation is available to ARM members on its website, which is www.academyhealth.org.

Emery N. Brown, MD, PhD Receives the 2011 Jerome Sacks Award for Cross-Disciplinary Research

NISS presented the 2011 Jerome Sacks Award for Cross-Disciplinary Research to Dr. Emery N. Brown of MIT and Harvard. Susan Ellenberg, chair of the Board of Trustees, announced the award at the 2011 Joint Statistical Meetings in Miami, Florida. The annual award, named in honor of Jerome (Jerry) Sacks, the founding director of NISS, was established in 2000 to recognize "sustained, high-quality cross-disciplinary research
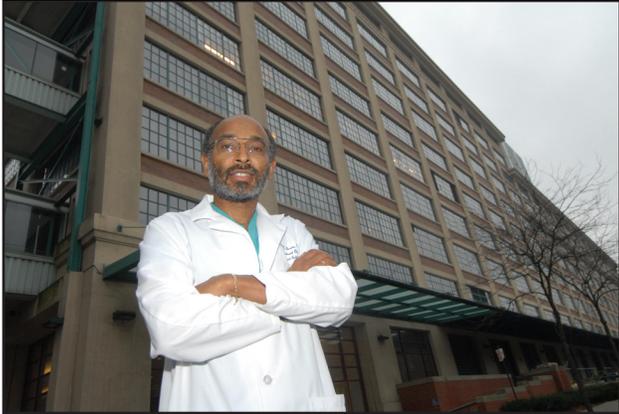
involving the statistical sciences."

Brown is Professor of Health Sciences and Technology and Professor of Computational Neuroscience, Massachusetts Institute of Technology, and the Warren M. Zapol Professor of Anesthesia, Harvard Medical School/Massachusetts General Hospital. He received his M.D. from Harvard Medical School and a Ph.D. in statistics from Harvard University, and is now an anesthesiologist-statistician whose research focuses on the development of signal processing algorithms to characterize how the patterns of electrical discharges from neurons in the brain represent information from the outside world.

Dr. Brown is an elected member of the Association of University Anesthesiologists, the American Institute for Medical and Biological Engineering, the Institute of Medicine of the National Academies, and a fellow of the American Statistical Association, the American Association for the Advancement of Science and IEEE. Since receiving the NIH Director's Pioneer Award in 2007, he has been using a systems neuroscience approach to study how anesthetic drugs act in the brain to create the state of general anesthesia.

In response to receiving the award, Brown stated that "Cross-disciplinary work is a vital source for statistics. Cross-disciplinary questions pose new problems, with more challenging constraints than the ones we could ever imagine by our mathematical supposition alone. These new problems and their solutions will dictate important parts of the theory and practices that will shape statistics into the future. We should make our contacts with other fields as broad as possible to insure that the sources of new ideas for statistics come from as many areas as possible."

As Sacks award recipient, Brown receives $1,000, and his name is added to a plaque housed at NISS that lists all recipients of the award.

Rosenberger and Utts Recipients of the 2011 NISS Distinguished Service Awards

James Rosenberger and Jessica Utts are this year's recipients of the NISS Distinguished Service Awards. The awards were presented at a NISS-sponsored reception at the Joint Statistical Meetings.

The NISS Distinguished Service Awards were established by the Board of Trustees in 2005 to recognize individuals who have given extraordinary service that significantly advances NISS and its mission.

James Rosenberger, Pennsylvania State University, received the award for his long-term service to NISS as a member of the Executive Committee and for the last two years as chair of the Finance Committee, as well as his department's support of NISS and SAMSI through the affiliates program and by hiring of former NISS postdocs.

Jessica Utts, University of California Irvine, was given the award in recognition of her multiple terms on the Board of Trustees and the Executive Committee, her chairing the Awards Committee, and her three years (2008-11) as vice-chair of the Board. Jessica, who has been on the Board since 1997, is now one of its longest-serving members.

Both Utts' and Rosenberger's names will be added to a plaque that is displayed in the lobby of the NISS building in Research Triangle Park, which lists the names of all recipients. In Miami, each received from Karr a black, long-sleeved NISS t-shirt, which he termed "perfect beach attire."

Cynthia Clark and Steve Cohen.

L-R: Terri Harris, Mark Harris, Kathy Ensor, Linda Young, Amy Herring, and Keith Crank.

Nick Fisher, Kim Sellers and David Banks.

Jennifer Clarke, Susie Bayarri and Jim Berger.

Stan Young and Keith Soper.
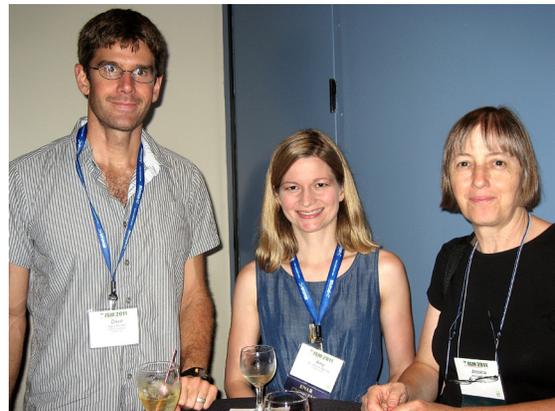
Dave Dunson, Amy Herring, Jessica Utts.

Back Row L-R: Edo Airoldi, Frank Zou, Jay Wang, Michael Robbins, Ashish Sanil, Murali Haran, Xia Wang, Adrian Dobra, Ivan Carrillo-Garcia. Front Row: Xingdong Feng, Jennifer Clarke, Saki Kinney, Criselda Toto, Weiwei Cui.

Stephen Huckemann, Susan Ellenberg, Roger Hoerl.

Matthias Schonlau.

Jon Kettenring.

Jacque Landwehr, Karen Kafadar and Jim Landwehr.

Jessica Utts and Jim Rosenberger were this year's winners of the NISS Distinguished Service Awards (see page 5).

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