NISS and Duke University have received a grant from the National Science Foundation (NSF) and the U.S. Census Bureau for the Triangle Census Research Network (TCRN). The award, one of eight nationwide under the NSF-Census Research Nodes program, is for nearly $3 million and covers a five-year period. Jerome Reiter (PI), Mrs. Alexander Hehmeyer, Associate Professor of Statistical Science at Duke; and Alan Karr, director of NISS and co-PI, are collaborating on this project, along with other statisticians, economists and political scientists from Duke and NISS.

The grant will be used to improve how federal statistical (“FedStats”) agencies disseminate data to the public and to researchers. Specifically, the TCRN will enhance FedStats agencies’ capabilities by developing broadly-applicable methodologies in three interrelated areas: (i) disseminating public use data with high utility and acceptable disclosure risk, (ii) handling missing data and correcting faulty data in large complex surveys, and (iii) integrating information from multiple data sources. The TCRN will also offer educational opportunities to postdoctoral fellows, graduate students, and statisticians at federal agencies, helping to train future leaders in data dissemination research and practice.

The FedStats agencies collect data of all kinds that affect many people, including the decennial census, unemployment numbers and the Consumer Price Index. NISS has been and is in collaboration with many of these agencies, including (in addition to the Census Bureau) the Bureau of Labor Statistics, the Bureau of Transportation Statistics, the Energy Information Administration, the National Agricultural Statistics Service, the National Center for Education Statistics and the National Center for Health Statistics. Among NISS’ achievements are methods used nationally to produce high school graduation rates and crop forecasts, as well as a plethora of techniques and tools that support dissemination of high quality information derived from confidential data.

By building on these achievements as well as creating new theory and methodology applicable to major Census Bureau data products, the TCRN’s research will improve the hundreds of secondary analyses of these datasets. The interdisciplinary team of the TCRN, which consists of statisticians, economists, political scientists and operations researchers, will use these data products to answer questions in aging, economics, and social welfare that have important implications for policy making.

“The TCRN will improve the way we handle missing and faulty data by integrating paradigms from statistics and operations research,” explained Karr, “The team will also develop nonparametric Bayesian approaches for multiple imputation of missing data in high dimensions with longitudinal and multi-level aspects, as well as address central issues in data integration.”
NISS-SAMSI Affiliates are invited to the paired events: a Workshop on Cell Suppression and the 2012 Affiliates Meeting with technical talks focusing on the upcoming SAMSI year-long programs: Data-Driven Decisions in Healthcare and Statistical and Computational Methodology for Massive Datasets. Programs for the workshop and the meeting will be published soon on the NISS and SAMSI websites. Each affiliate liaison is invited to attend and to bring a colleague whose interests intersect one of the three highlighted topics; junior colleagues are especially welcome.

May 14 (Monday) 8:30am - 3pm: Cell Suppression Workshop
3 – 5:30pm: Affiliates Meeting – NISS and SAMSI updates and business
6pm: Affiliates Dinner

May 15 (Tuesday) 8:30 - 2:30 pm: Affiliates Meeting continued
9 – 12:15pm: Invited talks on topics in Healthcare and Massive Data
12:15 – 2:30pm: SAMSI - planning for 2013-2014, as well as Affiliates’ roles in SAMSI

Separate registrations are required for the workshop and the affiliates meeting and program. Space in the workshop is limited but affiliates will have priority.

Topics in Healthcare and Massive Data: Agenda to be published on NISS and SAMSI websites. Talks will presage the SAMSI programs by addressing motivation, background material and technical issues for these 2012-2013 programs.

Postdoc Profile:
Junheng Ma

Junheng Ma started working for NISS this past fall on the National Survey of College Graduates (NSCG), and National Survey of Recent College Graduates (NSRCG) as part of a project funded by the National Center for Science and Engineering Statistics at NSF. Last year, Junheng was a postdoc for SAMSI and was involved with the Analysis of Object Data program. He collaborated with people in the Statistical Inference for Functional Data working group.

Junheng grew up in the northern part of China in a mid-sized city called YangQian. He went to college nearby and studied applied mathematics, then applied to graduate schools in the United States. He chose to go to Case Western Reserve University in Cleveland, Ohio where he studied statistics. Joe Sedransk was one of his two advisors while he was at Case. His thesis work, “Contributions To Numerical Formal Concept Analysis, Bayesian Predictive Inference And Sample Size Determination,” involved survey methodology, which has been a good connection to the current work he is doing at NISS.

Junheng said he is enjoying working on the project so far. He meets with Ivan Carrillo-Garcia, another NISS postdoc, and Alan Karr, director of NISS, a couple of times a week to discuss what results they are finding so far. He said it has been an excellent environment to work in. He feels working on these surveys has helped to broaden his research activities.

When Junheng is not working at NISS he likes to spend time with his one and a half-year-old daughter, Sydney, and his wife, both whom are currently living in Boston.

NISS Calendar of Events

Long-Range Dependence, Self-Similarity and Heavy Tails - International Conference in Honor of Professor Murrad S. Taqqu
April 19-21, 2012 at UNC-Chapel Hill. ARA ELIGIBLE.

Network of Greater Georgia Institutions for Neuroimaging and Statistics (NOGGINS) Workshop
April 20, 2012 at University of Georgia in Athens, GA. ARA ELIGIBLE.

NISS and SAMSI Affiliates Meeting and NISS Cell Suppression Workshop

Southern Regional Council on Statistics Summer Research Conference
June 3-6, 2012 at Jekyll Island, GA. ARA ELIGIBLE.

8th International Purdue Symposium on Statistics "Diversity in the Statistical Sciences for the 21st Century"
June 20-24, 2012 at Purdue University, West Lafayette, IN. ARA ELIGIBLE.
Karr Elected into Membership of Johns Hopkins Society of Scholars

Alan Karr, Director of NISS, was elected into membership in the Johns Hopkins Society of Scholars. The Society was established in May 1967 by the trustees of the University to honor distinguished former postdoctoral fellows, recipients, postdoctoral degree recipients, house staff and junior or visiting faculty who have served at least a year at Johns Hopkins and thereafter gained marked distinction elsewhere in their fields and for whom at least five years have elapsed since their last Johns Hopkins affiliation. Karr spent twenty years at Johns Hopkins University in the Mathematical Sciences Department. He was a Professor in the Department from 1983-1993. He served as Chair of the Department from 1985-86. He also served as Associate Dean, G.W.C. Whiting School of Engineering from 1986-1992.

Diebold Project Explores Failure Data for ATMs

Alan Karr and Stan Young are working on a project with Diebold Corporation. The principal focus of the project is to analyze machine- and human-generated failure data for automatic teller machines (ATMs). One thing the company hopes to achieve is to help predict when these failures may occur. Currently Karr and Young are looking at data from machines that are located indoors and that can only be used to withdraw money. Typically these machines are found in places like casinos and bars.

Young and Karr Propose Ways to Improve How Observational Studies are Conducted

Stan Young and Alan Karr published a non-technical article in the September issue of Significance magazine pointing out that medical and other observational studies often produce results that are later shown to be incorrect, and—involving a quality control perspective—suggest ways to fix the system.

Their central point is that the current system of publication in peer-reviewed journals relies on post-production inspection to ensure quality, a practice that has disappeared from modern industry in favor of controlling the process instead: quality control is now process control, not product control. They cite W. Edwards Deming, considered by many the most innovative thinker ever about quality, arguing not only for process control but also that the problem lies with the managers—funders and journals—rather than with the workers—individual researchers who respond rationally to the current set of incentives.

Young and Karr describe both their anecdotal experiences and studies of the extent to which observational studies do not replicate. Published claims such as “coffee causes pancreatic cancer,” or “women eating breakfast cereal are more likely to have boy babies,” have been refuted by subsequent studies and analyses. When these studies just on science but also on society. And even if there were no impact on the public, scarce research resources, both money and personnel, may have been squandered.

The paper describes several technical difficulties with observational studies, among them multiple testing (if enough questions are asked, some will yield false positive answers), bias (systematic error) and multiple modeling (searching among mathematical models until one is found that “fits the data”). Publication bias is another issue: papers reporting positive scientific results (for example, an association between Type 2 Personalities and heart attacks) are more likely to be published than those reporting negative results, even though the latter may be as important scientifically.

Young and Karr recommend that when a study is submitted for publication, the data set should be split into two sets, a modeling data set and a holdout data set. Journals would then accept or reject papers based on the analysis of the modeling data set without knowing the results of applying the methods to the holdout set. But then the journal would also publish an addendum to the paper giving the results of the analysis of the holdout set.

NISS Outreach

Cox and Karr Speak at ISI Dublin

Larry Con and Alan Karr recently traveled to Dublin, Ireland to present at the 58th World Statistics Congress of the International Statistical Institute (ISI). Participants in the Congress include academics, government and private sector statisticians and related experts from various institutes.

Larry is currently serving as a Council member. The incoming ISI President, JC Lee, has identified Portfolios Projects for the Council; each project is assigned to two Council members. Larry serves on two projects: Professional Ethics and Accreditation.

Karr and Cox Teach Short Course on Data Confidentiality

Alan Karr and Larry Cox taught a short course on the subject of confidentiality and disclosure avoidance in November at the National Center for Educational Statistics in Washington DC. Confidentiality is an area that is of great interest to many federal statistical agencies.

2012 Federal Committee on Statistical Methodology (FCSM) Research Conference, Jan. 10-12 2012

Alan Karr and Larry Cox presented papers during the “Simulation Models of Federal Surveys” session. Larry’s paper, “The Case for Simulation Models of Federal Surveys” summarized the NISS Survey Simulation workshop. He talked about developing survey simulators and the issues of the scope of processes simulated. Allen’s paper, “The World’s Smallest Survey Microsimulator,” described software to simulate surveys. It is a simple program based on assumptions designed to demonstrate the importance of simulating survey agents (interviewers and respondents) and their interactions.


Larry Con gave a talk at the workshop entitled, “A Simulation Laboratory for Federal Surveys,” John Ehling from the US Bureau of Labor Statistics was the discussant. Alan Karr presented “The World’s Smallest Survey Microsimulator” talk at this workshop as well.

NISS Hosts NC Science Fair Foundation

The North Carolina Science Fair Foundation (NCSFF) held its annual board meeting at NISS on December 9. NCSFF promotes science and engineering research by elementary, middle and high school students, and partners with teachers to integrate scientific research into the classroom. NCSFF organizes science and engineering fairs to showcase and celebrate student research and learning. The board consists of teachers and professors from across North Carolina. Alan Karr greeted the group and told them about NISS and our mission and vision.

NISS held its 2011 annual meeting on November 4 and 5, at its headquarters in Research Triangle Park, NC. More than twenty members of the Board of Trustees and the NISS Corporation attended—a record. The focus of the meeting was breakout discussions on the NISS-SAMSI Affiliates Program and “Marketing NISS.” Recognizing the role of the American Statistical Association (ASA) as one of NISS’ ten parent organizations, the Board observed a moment of silence in remembrance of the late Martha Alagna, former director of education at the ASA, whose memorial service was held on November 3.
Photos from the Annual Board Meeting and the NISS Turkey Fry

Alan Karr, George Williams, Susan Ellenberg and Donna Brogan at the reception and dinner.

Jessica Uits and Mary Ellen Bock at the reception and dinner.

Bob Rodriguez and Roger Hoerl at the dinner and reception.

Jim Landwehr, Nell Sedransk and Cliff Spiegelman.

Alan lowering the turkey into the fryer.

A mere 45 minutes later, voilà! The potluck is ready to begin!

Alan carves the turkey.

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!
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