

NISS

Parameters

*A quarterly newsletter from the National Institute of Statistical Sciences -
The Statistics Community Serving the Nation*



NISS Awards at JSM in Washington DC Recognize Three Eminent Statisticians

NISS presented its major awards for 2009 at the NISS/SAMSI reception at the Joint Statistical Meeting (JSM) in Washington DC in August. More than 300 people attended.

James Landwehr, chair of the board of trustees of NISS, announced that the 2009 Jerome Sacks Award for Cross-Disciplinary Research is given to Ramanathan (Ram) Gnanadesikan. Gnanadesikan, now retired, spent his career at Bell Laboratories and Bellcore. He was recognized for his pioneering work in multivariate data analysis, and for helping people to recognize the importance and the central role of data in statistics. Gnanadesikan was among a small group of statisticians who, along with Sacks, Ingram Olkin and others, pushed for creation of a statistical institute focusing on cross-disciplinary issues, leading directly to the establishment of NISS in 1990.

The 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," that exemplifies the NISS role of identifying, catalyzing

and fostering high-impact, cross-disciplinary research involving the statistical sciences.

Although Gnanadesikan was not able to be present to receive the award in person, he sent a statement that was read by Jon Kettenring, his long-time colleague and former chair of the NISS Board. In it, he noted that "Statistical science, by its very nature, provides rich opportunities for getting involved in a wide variety of cross-disciplinary activities. In my view, the role of a statistician in cross-disciplinary research is different from consulting in that it requires a much deeper immersion in the subject matter field. Such a role is exciting, and has at least two resulting benefits. The first is the knowledge gained by the immersion in the subject matter fields in question. The second is the feedback from the applications into developing appropriate modifications of existent statistical methodology and, quite often, new techniques."

Alan Karr, director of NISS, announced the recipients of this year's Distinguished Service Awards: Vijay Nair of the University of Michigan and

John Rolph of the University of Southern California.



Ram Gnanadesikan is the 2009 recipient of the Jerome Sacks Award for Cross-Disciplinary Research.

Nair's award honors his service as the chair of the Board of Trustees from 2004 to 2008, his role in development of the 2004 strategic vision, his leading the 2007 strategic positioning study and his leadership during most of the building addition project.

The award to Rolph recognizes his service to NISS as a long-term member of the Board of Trustees and his leadership within the Board, including having chaired the Science Committee, and

(Continued on page 6)

A Note from the Director

From the Director:

Let me first congratulate 2009 Sacks Award winner Ram Gnanadesikan and 2009 Service Award recipients Vijay Nair and John Rolph. It is especially satisfying to see the Sacks Award



go to a person who spent a career in the industry.

This fall at NISS (and SAMSI) is the most exciting in memory—

even more so than last fall's completion of the building addition!

Thanks especially to the efforts of associate director Nell Sedransk, our research program is thriving. With two new postdocs, the NCI-funded CPTAC project is running at full

speed. The NISS-NASS joint research program, with its three new postdocs, is

producing results more rapidly than anyone expected. And the NSF/DTRA-funded syndromic surveillance project, which supports one new postdoc, is off to a productive start. We continue to conduct major efforts for the

National Center for Education Statistics, addressing issues ranging from maps and graphics to projections of educational statistics to nonresponse bias to postsecondary access and choice. We are even back into transportation, as part of a multi-organization effort led by North Carolina State University, entitled Establishing Monitoring Programs for Travel Time Reliability. Multiple proposals and other initiatives are under development as well.

Quite literally, the building is abuzz with activity. Thanks to an infusion of funds from the NSF, SAMSI has sixteen resident postdocs, who combined with our six, constitute the largest statistics/applied math postdoc community in the country. There is also a record number of SAMSI visitors, and, in fact, both the old and new buildings are full!

In 2010, we will celebrate the 20th anniversary of the formation of NISS and the 10th anniversary of creation of the affiliates program. The numerological coincidence is, of course, irresistible, and we are starting now to plan how to recognize these two milestones in the evolution of NISS. Any and all ideas are welcome!

Alan Karr
Director

AT&T Team Win Netflix \$1 Million Prize

Congratulations to Bob Bell and Chris Volinsky from AT&T, one of NISS' affiliates, who are part of the team that won the \$1M Grand Prize from the Netflix Prize contest. They won the prize for devising the best way for Netflix to improve its movie recommendation algorithm, which generates an average of 30 billion predictions per day, by ten percent or greater.

Bell and Volinsky were part of team BellKor's Pragmatic Chaos. They achieved the winning RMSE of 0.8567 on the test subset. This represents a 10.06% improvement over Cinematch's score on the test subset at the start of the contest. The competition lasted three years, a long time to achieve these results.

The team consisted of Bob Bell, Martin Chabbert, Michael Jahrer, Yehuda Koren, Martin Piotte, Andreas Töschler and Chris Volinsky.

The Prize was awarded in a ceremony in New York City on September 21, 2009.

NISS

Celebrating 20th year of NISS

2010

10th year of affiliates program

Photos From: NISS-SAMSI Reception at the Joint Statistical Meeting

Photos by Senora Decosta



(L-R) Karen Kafadar, Bill Szevczyk, Bill Shannon, David Marchette.



(L-R) Jim Landwehr, Lorraine Denby, Mary Ellen Bock and Steve Ruberg.



(L-R) Saki Kinney, Xiaodong Lin and Yuguo Chen.



(L-R) Ingram Olkin, Alan Karr, Steve Marron and Lina Sue Marron.



(L-R) Graham Wills, Dan Rope and Daryl Pregibon.



(L-R) Stan Young, Joe McCloskey, Bill Szevczyk, Sid Dalal and Steve Knox.

Postdoc Profile:

Xingdong Feng

Xingdong Feng grew up in the Jiangsu Province of China, near Shanghai. He started out as a pure mathematical theorist, but through his coursework at Nanjing University, he wanted to know how mathematics could be used in everyday life, so he started to study statistics. He graduated from Nanjing University with a B.S. in Mathematics in 1999 and from Renmin University of China with an M.A. in economics in 2002. He then moved to the United States to study statistics for his Ph.D. at the University of Illinois at Urbana-Champaign. He collaborated with his advisor, Dr. Xuming He, on research that included a paper entitled, *"Inference on Low-Rank Data Matrices with Applications to Microarray Data"* which will soon appear in the **Annals of Applied Statistics**. His dissertation was titled *"Dimensionality of Data Matrices with Applications to Gene Expression Profiles."*

Xingdong's research has tended toward theoretical work, in particular, the dimensionality of data metrics. Though the work is theoretical, it has real applications, such as testing the dimensionality of probe-level microarray data. He is now extending this work to more robust cases. In the past, he looked at data where row dimensions (length) goes to infinity, but the column length is fixed. Now, he is considering the problem where both the row and the column dimensions become infinite.

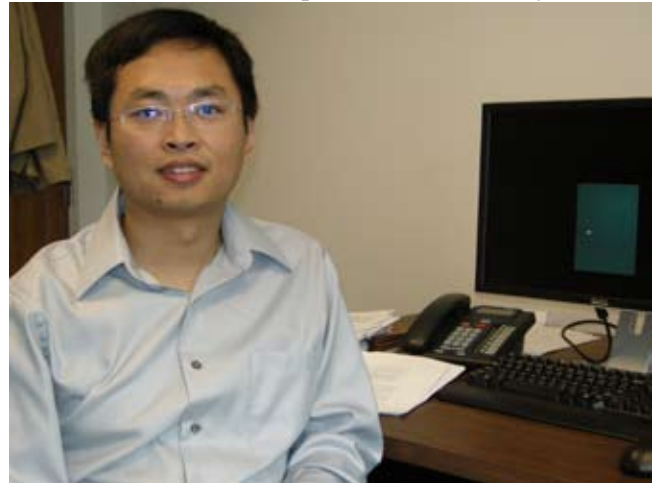
Xingdong arrived at NISS this summer as one of six new postdoctoral fellows. He is working with Nell Sedransk on the Clinical Proteomic Technology Assessment for Cancer (CPTAC), a National Cancer Institute program involving five major research centers across the United States.

The CPTAC program is a five-year, \$104 million

initiative to build the foundation of technologies, data, reagents and reference materials, analysis systems, and infrastructure needed to systematically advance protein biology for the diagnosis, treatment and prevention of cancer. NISS' role is to provide statistical expertise and guidance on the project and to develop specific statistical methodology for proteomics research. NISS is also working with the five centers to analyze the combined data from their multi-center studies in order to maximize the information gained from these large research efforts in proteomics.

"I am really enjoying my time here at NISS so far," expresses Xingdong, "I am learning a lot about an entirely new field of research. It is very exciting to be a part of this work."

Xingdong said NISS is working on in-depth statistical analysis



Xingdong Feng is one of NISS' postdoctoral fellows who is working on the CPTAC project.

of the multi-institution designed experiments that scientists have developed for the CPTAC program and also using these analysis to design the next generation of multi-institution studies. The NISS team gives graphical results to the scientists so they can help them improve their replications, "Using statistics is quite useful for them," notes Xingdong.

Xingdong is also collaborating with others on projects involving Sequential Monte Carlo methods, and is still working with his former advisor on the wild bootstrap for M estimators of linear regression research.

Xingdong is married, and lives in Raleigh. He and his wife expect a baby boy sometime this November.

Affiliate Profile:

National Agricultural Statistics Service

The USDA's National Agricultural Statistics Service (NASS) conducts hundreds of surveys every year and prepares reports covering virtually every aspect of U.S. agriculture. Production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm finances, chemical use, and changes in the demographics of U.S. producers are only a few examples. In carrying out its

agricultural data. The Census covers every county of every state in the U.S.

The United States Department of Agriculture (USDA) was established in 1862. NASS, originally known as the Division of Statistics, was established shortly thereafter in 1863, although data collection on agriculture in the United States had begun at least as far back as the time of George Washington, who kept statistical

service to agriculture. In support of this, the agency pursues a wide variety of possibilities to ensure that its methods are as efficient and effective as possible. The focal point of this effort is ensuring that the Agency is both doing the right things and doing them correctly.

In June 2009, NASS launched a new collaborative research program: the NISS-NASS Research in Residence Program. This is the first project in a NISS initiative to host academic-government research teams focused on specific federal agency objectives. The NASS projects focused on advances in statistical methodology both for implementation in the Agency's surveys and for the use of its survey results in forecasting and estimation.

"This Cross-Sector Research in Residence Program provides us a unique opportunity to leverage technical expertise in the academic community to address operational issues of importance to NASS. An important secondary benefit is the professional developmental opportunities it affords our own staff, in working with academic technical experts as a part of these teams. I'm very pleased with the amount of progress made by the teams during this first summer of the program," commented Dale Atkinson, Chief of NASS' Census and Survey Research Branch.

Three teams assembled at NISS, each with a charge to address a separate operational
(Continued on page 7)



Criselda Toto (left), Kenny Lopiano (center) and Josh Habinger (right) were the graduate students involved with the NISS-NASS cross-sector research in residence program this past summer.

commitment to providing timely, accurate, and useful statistics in service to U.S. agriculture, NASS conducts an extensive on-going survey program. The agency also conducts the Census of Agriculture every five years, providing the only available source of consistent, comparable and detailed county-level

records about his and other people's farms.

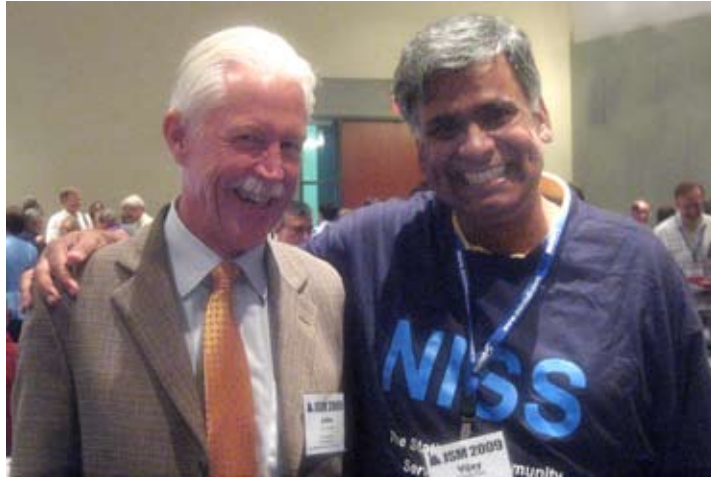
Much has changed since NASS' inception, in terms of agricultural data needs, the structure and scope of agriculture, and the statistical methodologies available to carry out its mission of providing timely, accurate and useful statistics in

Sacks and Service Awards

(Continued from page 1)

chairing the Finance Committee throughout the building addition project.

The names of both Nair and Rolph will be added to a plaque at NISS that honors all 12 of the recipients to date who have received the award. In addition to having his name added to a plaque listing the nine Sacks Award recipients, Gnanadesikan received a check for \$1000. All three received the new NISS t-shirt bearing the tagline "The Statistics Community Serving the Nation."



John Rolph (left) and Vijay Nair (right) are the 2009 recipients of the NISS Distinguished Service Award.

NISS is Social Networking

NISS is on LinkedIn. You can join our group by looking for NISS.

On Twitter, follow us @NISSAMSIS. We currently have over 300 followers on Twitter.

If you prefer Facebook, we have a Facebook page: www.facebook.com/pages/Research-Triangle-Park/National-Institute-of-Statistical-Sciences/128907753614.

Calendar of Events

Design and Analysis of Experiments Conference: DAE 2009

October 14-17, 2009

Location: University of Missouri, Columbia, MO

Details: dae.stat.missouri.edu

This event is ARA-eligible

Exploration Workshop II on Financial Risk Modeling

October 20-21, 2009

Location: Office of the Comptroller of the Currency, Washington, DC

Focusing on Success in Modeling of Market Risk and Systemic Risk

2009 Non-Clinical Biostatistics Conference

October 21-23, 2009

Location: 77 Avenue Louis Pasteur, Boston, MA 02115

www.hsph.harvard.edu/ncb/index.html

NISS is a co-sponsor of this event, and is ARA-eligible.

NISS Affiliates Workshop on Computational Advertising

November 4-5, 2009

Location: NISS Headquarters in Research Triangle Park, NC

Topics include Advertiser Graphs, Sponsored Search Advertising, Computational Advertising, Recommender Systems, Search Engines and Website Front Pages.

This event is ARA-eligible.

NISS Annual Meeting

November 6-7, 2009

Location: NISS Headquarters, Research Triangle Park, NC

NISS-OCC Explorations Workshop II – Market Risk and Systemic Risk

The Office of the Comptroller of the Currency (OCC) and NISS are teaming up again for a second NISS-OCC workshop on Financial Risk. This two-day workshop will focus on Market Risk and Systemic Risk, and it will be held at OCC in Washington DC on October 20-21, 2009.

Speakers at the workshop include:

Riccardo Rebonato, Global Head of Market Risk and Quantitative Analytics at RBS, London, UK;

Peter Carr, Director of the Masters in Math Finance program at NYU's Courant Institute and Head of Quantitative Financial Research at Bloomberg LP;

Francis Diebold, Paul F. and Warren S. Miller Professor of Economics, School of Arts and Sciences, University of Pennsylvania, and Co-Director, Financial Institutions Center, Wharton School, University of Pennsylvania;

Rick Bookstaber, former Manager of Quantitative Equity Fund at FrontPoint Partners, Risk Manager at Moore Capital Management, and now Managing Director for firm-wide risk management at Salomon Brothers;

Andrew Lo, Harris & Harris Group Professor, Sloan School of Management at MIT, and Director, MIT Laboratory for Financial Engineering;

Andrew Kuritzkes, Senior Partner at Oliver Wyman, and former Vice Chairman of Oliver, Wyman & Company;

Til Schuermann, Head of Financial Intermediation Function, Federal Reserve Bank of New York;

Siem Jan Koopman, Professor of Econometrics, Vrije University,

Amsterdam, Netherlands.

In response to these formal presentations, a distinguished panel will elucidate statistical issues and examine the potential roles for statistics in modeling market and systemic financial risks. Panelists include:

Michael Sullivan, (Moderator) Director, Market Risk Analysis Division, OCC;

Richard Davis, Professor of Statistics, Columbia University;

Akhtarur Siddique, Enterprise Risk Analysis Division, OCC;

Jianqing Fan, Frederick L. Moore Professor of Finance, Princeton University;

Francis Diebold, Paul F. and Warren S. Miller Professor of Economics, University of Pennsylvania;

Joseph Langsam, Managing Director of Morgan Stanley;

Bonnie K. Ray, Manager, Risk Analytics, IBM, TJ Watson Research Center.

The second day of the workshop will be an intensive working session to develop sub-documents outlining the principles and the challenges for statistics in modeling and analysis and in identifying the opportunities to improve existing models and methodologies.

Dow Jones Industrial

9778.86 41.34 or 0.42%
High, low, open and close for each trading day of the past three months.
Trailing P/E ratio 15.78
P/E estimate 15.71
Dividend yield 2.88
Current divisor 0.132319125



Affiliate Profile

(Continued from page 5)

issue posed by and of great importance to NASS. Each team consists of two faculty researchers in statistics, NASS researchers, a NISS mentor, a postdoctoral fellow, and a graduate student. One additional team member comes from USDA's Economic Research Service.

The teams met throughout the summer at NISS, then the postdoctoral fellows relocated to spend the 2009-2010 academic year continuing their research at NASS headquarters in Fairfax, Virginia. Meetings via teleconference throughout the year will keep

everyone on the teams involved with the projects' progress. For the summer of 2010, the three teams will reconvene at NISS to extend their research once again in a more intensive on-site setting. A NISS-NASS Invited Session at JSM next August will highlight this program.

"This is the first time that NASS has funded research and development using this type of organizational model. I am excited to be involved in this endeavor," commented Wendy Barboza, one of the NASS project leads in the program.

P.O. Box 14006
19 T.W. Alexander Drive
Research Triangle Park, NC 27709
919.685.9300 (phone) 919.685.9310 (fax)
www.niss.org

NISS/SAMSI Affiliates

Industry

AT&T Labs-Research, Florham Park, NJ
Avaya Labs, Basking Ridge, NJ
Bayer HealthCare Pharmaceuticals, West Haven, CT
GlaxoSmithKline, Research Triangle Park, NC and Collegeville, PA
Merck Research Laboratories, West Point, PA
MetaMetrics, Inc., Durham, NC
PNYLAB, LLC, Princeton, NJ
RTI International, Research Triangle Park, NC
SAS Institute, Cary, NC
SPSS, Chicago, IL
Wyeth, Collegeville, PA
Xerox Innovation Group, Webster, NY
Yahoo! Research Laboratory, Silicon Valley, CA

Government Agencies & National Laboratories

Bureau of Labor Statistics, Washington, DC
US Census Bureau, Washington, DC
Energy Information Administration, Washington, DC
National Agricultural Statistics Service, Fairfax, VA
National Center for Education Statistics, Washington, DC
National Center for Health Statistics, Hyattsville, MD
National Security Agency, Ft. George W. Meade, MD
Office of the Comptroller of the Currency (Treasury Department), Washington, DC

University

University of California - Berkeley, Department of Statistics
Carnegie Mellon University, Department of Statistics
Columbia University, Department of Biostatistics
University of Connecticut, Department of Statistics
Duke University, Departments of Statistical Science and Mathematics
Emory University, Department of Biostatistics
University of Florida, Department of Statistics
Florida State University, Department of Statistics
George Mason University, Department of Statistics
Georgetown University Medical Center, Department of Biostatistics, Bioinformatics, and Biomathematics
University of Georgia, Department of Statistics
University of Illinois Urbana-Champaign, Department of Statistics
Indiana University, Department of Statistics
University of Iowa, Department of Statistics
Iowa State University, Department of Statistics
Johns Hopkins University, Department of Applied Mathematics and Statistics
Medical University of South Carolina, Department of Biostatistics, Bioinformatics and Epidemiology
University of Michigan, Departments of Statistics and Biostatistics
University of Missouri-Columbia, Department of Statistics
North Carolina State University, Department of Statistics
North Carolina State University, Department of Mathematics
University of North Carolina at Chapel Hill, Department of Statistics and Operations Research
University of North Carolina at Chapel Hill, Department of Biostatistics
University of North Carolina at Chapel Hill, Department of Mathematics
Oakland University, Department of Mathematics and Statistics
Ohio State University, Department of Statistics
Pennsylvania State University, Department of Statistics
Purdue University, Department of Statistics
Rice University, Department of Statistics
Rutgers University, Department of Statistics
University of South Carolina, Department of Statistics
Southern Methodist University, Department of Statistical Science
Stanford University, Department of Statistics
Texas A&M University, Department of Statistics
Virginia Commonwealth University, Departments of Biostatistics and Statistical Sciences