NISS at Twenty: A Look Back at Our Past - Part 4

Twenty years ago, several statisticians envisioned an institute that would reach across disciplines and across various industries and sectors to help further the research in statistical sciences. Since that time, the National Institute of Statistical Sciences has grown and flourished into a productive and dynamic organization that contributes in many different areas of statistical research.

What will the future be for this institution? Alan Karr, director of NISS, expects that the research will continue to

Alan Karr, director of NISS, and Jack Buckley, New York University, at the U.S. celebration of World Statistics Day.

diversify and grow. For example, just this fall, a new research project began involving the National Science Foundation's (NSF) Division of Science Resources Statistics (SRS). SRS designs, supports, and directs about 11 periodic surveys as well as a variety of other data collections and research projects. Two postdoctoral fellows have been hired to help with this project (see related story on page 5).

NISS
Celebrating 20th year of NISS
20 10
10th year of affiliates program

NISS is strengthening its presence in Washington DC as well. Nell Sedransk, associate director, is relocating to Washington DC and is opening an office there for NISS. NISS also employs five people in Washington. They are working on projects with the National Center for Education Statistics, the National Agricultural Statistics Service, the Energy Information Administration and other federal statistical agencies. Larry Cox, who joined NISS this past summer as an assistant director, is helping to lead the affiliates program and is also working on research projects in the DC area.

NISS is also in the midst of a search for a new deputy director, who will be located at its headquarters in Research Triangle Park, NC. The deputy director will help NISS expand and diversify its research program. This person will also be the NISS member of the SAMSI directorate, and will continue to strengthen the relationship between NISS and SAMSI.

The affiliates program is continuing to grow and diversify as well. This fall a new affiliate, the National Geospatial

Intelligence Agency, joined the program. The affiliates have also formed cluster groups for surveys and comparative effectiveness research, led by Cox and Stanley Young, assistant director for bioinformatics, respectively.

NISS today is at once substantially similar to and dramatically different from the vision of its founders. As Karr notes, "The founders anticipated that NISS would bridge across disciplines, as well as among academia, government and industry. They

Vice chair Jessica Utts and chairman Jim Landwehr cut the anniversary cake at the reception for the annual Board of Trustees meeting.

did not foresee SAMSI, nor did they foresee the need or the capability to take building expansion and associated debt. Above all, they had the foresight to create a Board of Trustees that links us to the statistical sciences community. None of us knows what NISS will look like at age 40, but with the ongoing wise counsel and support of the Board, we will continue to behave as Al Bowker, the first chair said we should, by taking steps in the right direction even if we don't know the final destination."

From the Director: Why Give to the NISS Fund?

As many of you know already, earlier this year we established the NISS Fund as an initial step in generating the resources that NISS needs in order to be able to invest in its own future. This message is my personal plea to all of the friends of NISS to help us in this exciting and important endeavor.

Let me begin with a bit of history. When NISS was established in 1990, the Research Triangle Foundation provided startup funds in the amount of $1,500,000, spread over our first six years. This incredibly generous support enabled NISS immediately to appoint Jerry Sacks as its first director and, a year later, me as the first associate director. It also allowed NISS to acquire a staff, equipment and space sooner rather than later. And it let NISS begin holding the workshops and establishing the relationships that led to our first set of projects.

Ten years later, when NISS entered a period of financial uncertainty and I became director (No causality should be inferred, in either direction!), the Triangle Universities Center for Advanced Studies, Inc., or TUCASI—one of our ten parent organizations, responding to the show of community support for NISS represented by formation of the affiliates program, provided $500,000 to NISS. These funds today constitute the majority of our financial reserves.

Continuing the saga, the final recommendation of the 2007 strategic positioning study performed for NISS by the Art & Science Group was that

"As NISS builds its research portfolio and capacity, and establishes itself as a communication resource, [it should] consider seeking philanthropic and other forms of financial support for this repositioned, seminal organization." Responding to this recommendation, the Board of Trustees approved a development feasibility study, which took place earlier this year. That study concluded that while the objectives in the case statement prepared by NISS were compelling, NISS has yet to demonstrate "that it can attain these objectives, and is not now positioned for broad-brush fundraising."

> "We will use the NISS Fund, through our activities, to invest in enlarging the statistics community's future." - Alan Karr

The NISS Fund was created as one step in the direction of building the key relationships needed for larger-scale fundraising. Another step is a series of efforts to seek support from foundations for specific NISS projects that intersect their priorities. The purpose of the NISS Fund is to help NISS increase our value added to the statistics community, and to pursue exciting new opportunities.

In less than a year, we have received nearly $5,000; thanks to an anonymous donor, there is now a donation in the name of every member of the Board of Trustees. I and many NISS employees have also given. My goal is to reach $15,000 by next year's JSM. This is more than doable: in 2000, we raised $30,000 to endow the Sacks Award.

So why should you give? The best reason, I believe, is that we will use the NISS Fund, through our activities, to invest in enlarging the statistics community's future. Someone before you invested in your future, and you need to do the same for someone who will follow. That these are difficult economic

times is a lame excuse. So is thinking that NISS does not merit your support: ask any of the hundreds of people who have participated in our projects as postdocs, students or collaborators what kind of a difference NISS made for them!

Plus, giving could not be simpler. Just go to the NISS web site; the direct link is http://www.niss.org/about/niss-fund. We take credit cards, and donations to NISS are tax-deductible. And even today, your employer may match your donation!

Alan

Donate to the NISS Fund

The end of the year is almost here, so it's not too late to make a donation to The NISS Fund and give yourself a little tax break!

Go to :

www.niss.org

Click on the NISS Fund link to make your contribution. Thank you for supporting NISS!

Photos From JSM 2010

Top Left: Alicia Carriquiry, Iowa State U. Top Right: John Rolfe and Jerry Sacks in background. Bottom Left: Richard Smith, director of SAMSI. Middle and Bottom Right: Attendees enjoy the NISS reception at JSM.

Former Postdoc Profile:
Murali Haran

Former NISS postdoc Murali Haran was at SAMSI this past year as a new researcher fellow for the program "Space-Time Analysis for Environmental Mapping, Epidemiology and Climate Change." Murali was a postdoctoral fellow for NISS in 2003-04.

Murali grew up in New Delhi, India, attending Delhi Public School - R.K. Puram, and moved to the United States to study at Carnegie Mellon University. He did his bachelor's degree in computer science and minored in mathematics, statistics and film. For his senior honors thesis in computer science he worked on a project in the

the time and had worked on an interesting research project on fMRI (functional magnetic resonance imaging) with William Eddy in the statistics department the previous summer. "Statistics professors at Carnegie Mellon, especially Bill Eddy and Steve Fienberg, among others, were very encouraging. They encouraged me to go to graduate school in statistics, so I did," Murali said.

Murali went to the University of Minnesota for graduate study in statistics. His Ph.D. was in statistical computing using Monte Carlo methods. "I started to get

for a postdoctoral position. He was at NISS for one year. He worked on statistical techniques called random forests for applications in software engineering research. His time at NISS led to two publications in premier software engineering journals and, perhaps more importantly, research connections and friendships with numerous postdoctoral fellows, faculty and graduate students affiliated with NISS, SAMSI, and Duke University,

Murali has been at Penn State in the Department of Statistics since September 2004. He was promoted four months ago to associate professor with tenure. At Penn State he has developed numerous ties with scientists across campus, including faculty at the department of geosciences and meteorology, environmental scientists in geography and ecology, and infectious disease modelers at Penn State's renowned Center for Infectious Disease Dynamics. His research has involved statistical methods for studying climate change, modeling the dynamics of infectious diseases, and studying the spread of invasive plant species. These interdisciplinary collaborations have led to new methodological research interests in spatial models, inference based on complex computer models, and statistical computing. He says these projects have also given him the opportunity to advise and work with many outstanding graduate students in statistics. In addition to these research projects and teaching both graduate and undergraduate courses, he continues his research in Markov chain Monte Carlo algorithms.

Murali Haran spent this past year at SAMSI as a new researcher fellow.

Robotics Institute developing a computer program that could recognize hand gestures made by people when wearing a special glove. He used hidden Markov models to model the hand gestures. When he asked questions about the models underlying the algorithms he was told that the underlying theory was based on probability models and ideas from statistics. "I was stunned by how well those algorithms worked," commented Murali. He was also taking some statistics courses at

interested in spatial models at that time as well, but my research ended up being entirely about perfect sampling and Markov chain Monte Carlo algorithms for sampling from distributions arising from spatial models. I didn't end up doing any research in spatial modeling for my Ph.D.," noted Murali.

After graduating from Minnesota and accepting a faculty position at Penn State, with his new department's enthusiastic agreement, Murali came to NISS in 2003

Murali participated in three working groups while at SAMSI last year: Computation, Visualization and Dimension Reduction in Spatio-Temporal Modeling, Interaction of Deterministic and Stochastic Models and Paleoclimate. His time at SAMSI has led to exciting new research projects and collaborations, and has already resulted in several submitted papers. Murali

Carrillo-Garcia and Toto Join NISS as Postdoctoral Fellows

NISS has hired two new postdoctoral fellows, Ivan Carrillo-Garcia and Criselda (Khriss) Toto, to work on a joint survey research project in collaboration with the Division of Science Resources Statistics (SRS) of the National Science Foundation (NSF).

Khriss and Ivan will conduct collaborative research on important problems with multiple dimensions under the joint mentorship of Alan Karr, director of NISS, Paul Biemer of RTI International and Jerome Reiter of Duke University, as well as SRS personnel.

They will work directly with SRS data sets arising from the National Survey of Recent College Graduates (NSRCG), the Survey of Earned Doctorates (SED) and the Survey of Doctorate Recipients (SDR).

Khriss graduated from Worcester Polytechnic Institute (WPI) this past year and is no stranger to NISS. She was one of the graduate students who worked on the NISS-NASS Cross-Sector Research Initiative. She was born and raised in the Philippines and got her undergraduate and master's degrees at De La Salle (DLSU) University. She also worked as a college instructor at DLS University teaching mathematics. She also spent one year teaching mathematics for Assumption College, which was actually a private high school.

"I'm looking forward to working with this new research group, consisting of a mix of researchers from SRS, Duke University, RTI International, and NISS. I feel I have a lot to learn from them," noted Khriss.

Ivan was born and raised in Colombia. He received his Bachelor of Science degree in Statistics from the National University of Colombia. While in school, Ivan took a class in sampling and really liked this area, so he applied to the University of Maryland and got his Master's degree in survey methodology in 2004. He received his Ph.D. at the University of Waterloo, Canada in 2008.

Ivan moved to Ottawa and worked for Statistics Canada for two years, working mainly on survey methodology.

"I found there were not a lot of postdoctoral positions in survey methodology," comments Ivan, "But this one was a really wonderful opportunity. I am really looking forward to working on this project."

Ivan Carrillo-Garcia (L) and Criselda Toto (R) joined NISS in October as postdoctoral fellows.

New Leaders for Board of Trustees

Susan Ellenberg, Professor of Biostatistics, Department of Biostatistics and Epidemiology, and Associate Dean for Clinical Research, University of Pennsylvania School of Medicine, will be the new chair of the Board of Trustees. Roger Hoerl, GE Global Research, will serve as the new vice chair. The terms will run from July 1, 2011 to June 30, 2012. The other members of the Executive Committee of the Board are Karen Kafadar, Indiana University; James Landwehr, Avaya Labs; Keith Soper, Merck; George Williams, Amgen; and Linda Young, University of Florida.

Mary Ellen Bock, Purdue University; Keith Soper, Merck; and Clifford Spiegelman, Texas A&M University, were re-elected to the Board of Trustees. Their new terms begins July 1, 2011 and run through June 30, 2014.

Richard Smith, Director of SAMSI, discussing the SAMSI renewal proposal with the Board of Trustees at the annual meeting in November.

Affiliate Profile:

GlaxoSmithKline

GlaxoSmithKline's (GSK) mission is to help people "Do More, Feel Better and Live Longer." Working at GSK gives statisticians a chance to feel they are giving back to society. Statisticians play an integral role at GSK: the work they do ultimately helps patients to live better lives.

Darryl Downing, vice president, Statistical and Quantitative Sciences (SQS), at GSK, leads four international groups at the company, all involving statisticians. The Statistical Sciences group in SQS consists of statisticians and statistical analyst programmers who work in pre-clinical development with scientists in Chemical Development, Pharmaceutical Development, Safety Assessment, Lab Animal Sciences, Molecular Discovery Research, and Drug Metabolism and Pharmacokinetics (DMPK). The team partners with clients by providing statistical leads for major late stage projects, and providing focused support through engagement with key business initiatives, drug programs and projects within R&D. They promote the use of statistical methods to enhance the drug development process, and raise awareness of statistical methods in design and experimentation. Statistical Sciences has about 26 statisticians helping 4,000 scientists, so as well as working with clients to provide statistical insight and improve data-driven decision-making, they empower them to use statistical design and analysis methodology through knowledge transfer, effective training and software.

Another team, the Research Statistics Unit, collaborates with other statistical and scientific groups mainly on first time in practice studies, and has a strong influence in the scientific community and regulatory agencies. They work on projects across GSK, providing expert statistical advice, developing new statistical methods to address industry needs, and presenting training, seminars and workshops on advanced statistical techniques. They also maintain strong links with academia to exchange ideas, and give guidance to PhD students to bring new talent to pharmaceutical industry.

The third group, Quantitative Decision Sciences, collaborate with teams to assess and articulate the benefits of their products and processes in the context of their risks and costs. They work in all phases of product development and across business functions, using structured group approaches and

GlaxoSmithKline's Research Triangle Park campus. (Photo courtesy of the GSK website)

diverse analytical tools to evaluate their options for achieving their business goals and contribute to the presentation of their findings to stakeholders. They represent GSK in a number of external efforts that focus on the analysis and communication of the benefits and harms of its products.

The fourth group is a group of statisticians and SAS programmers who are located in Bangalore, India. Biomedical Data Sciences India (BDSI) provides high quality and cost-effective analytical resources for clinical studies in an efficient and seamless way as an extension to the internal extended resource in GSK. Their primary deliverables are to provide statistical and programming support for early and late phase clinical R&D studies, epidemiology studies and Japanese studies. There are 54 people who work on clinical trials from Phase 1 through to Phase 4.

Downing said that many of the adaptive designs that are currently being utilized in the pharmaceutical statistics community began at GSK. These designs allow users to maintain statistical integrity while adapting them to their specific use.

"The pharmaceutical industry is changing and healthcare is getting more expensive. There are so many interesting problems for statisticians to get involved with here at GSK. Our people have the freedom to work on important problems," comments Downing. "Take safety as an example, an area that everyone is concerned about. The people in my organization thought about the issues and developed a software tool which they called SafetyWorks. This interrogates large electronic health records or claims databases and checks to see if there's any kind of safety signal in them. This tool is now produced by ProSanos. "

"There are all kinds of statistical issues within the pharmaceutical industry that can keep statisticians busy for the next century. The industry cuts across every area of statistics, which is what makes it such an exciting place to be for a statistician," remarks Downing, "There are so many

GSK (Continued)

different opportunities for statisticians to take part in and enjoy a very vibrant community."

GSK has been an affiliate since NISS created the affiliates program. Says Downing, "NISS being located next to our site in North Carolina played a factor, but the programs and workshops that NISS and SAMSI offered were very attractive to GSK and played a larger role in our decision to be an affiliate. I'm a firm believer in NISS and its affiliates program. It deals with statistical issues in many different areas that are of interest to the pharmaceutical industry. For example, there's going to be a workshop on Comparative Effectiveness Research and that is an area that is of great interest to us, and to others in the pharmaceutical industry."

"I would encourage people to look at the NISS website and see the types of activities it is involved with and take part," says Downing. "NISS is working on the frontier of many statistical problems and it is doing some amazing things. GSK is going to remain involved with NISS in the future."

Haran (Continued)

says, "I learned a lot last year and new avenues of research have been opened up to me. The research collaborations and friendships I have formed at SAMSI will undoubtedly have a continued impact on my academic career for years to come."

NISS Helps U.S. Celebrate World Statistics Day

Wednesday, October 20, written as "20-10-2010" by most countries around the globe, was the first World Statistics Day. The United Nations General Assembly designated the day as a day to promote statistics and the importance of the statistical profession around the world. Statistical organizations around the world celebrated the day. Some developed posters, others wrote songs or produced videos. Alan Karr, director of NISS, helped gather several organizations from the United States together to plan the official U.S. celebration of the day.

The committee included representatives from the American Academy of Political and Social Science, American Statistical Association, Committee on National Statistics, Council of Professional

Speakers at the U.S. celebration of World Statistics Day included Steve Landefeld, director of the Bureau of Economic Analysis (L), Bob Groves, director of the U.S. Census Bureau (middle) and Ken Prewitt, former director of the U.S. Census Bureau (R).

Associations on Federal Statistics, Consortium of Social Science Associations, Interagency Council on Statistical Policy, and, of course, from NISS. The group planned a Congressional briefing, inviting members of the Congress and their staff, the media and representatives from the Interagency Council on Statistical Policy (ICSP).

Over 100 people attended the event, held in the Rayburn Building in Washington DC. Speakers included Chief Statistician for the United States, Katherine Wallman, Director of the U.S. Census Bureau, Robert Groves, Former Director of the U.S. Census Bureau, Ken Prewitt and Director of the

Bureau of Economic Analysis, Steven Landefeld.

In a written message from President Barack Obama, read by Wallman at the event, Obama said, "Statistical data drives countless decisions which impact our Nation. It guides representation in the United States Congress; informs our economic, social service, and national security outlook; and helps determine where infrastructure like schools, hospitals, and roads should be built."

Prewitt commented that it is very important that federal statistical agencies be seen through the lens of science. He said that the *Annals of the American Academy of Political and Social Science* covered this subject in its latest issue and that copies were available for attendees to take home with them.

Groves noted in his speech that the key to a successful democracy is that we can produce numbers that are credible and are free from a political point of view.

Landefeld remarked that the gross domestic product (GDP) is made of a mosaic of other data that are collected from all of the other federal statistics organizations. Every state and many localities use the GDP from the BEA to allocate funds, which makes it even more crucial that accurate and impartial data be generated from his agency.

The ICSP agencies had tables in the back of the room and had representatives available to answer questions people had about each agency.

If World Statistics Day becomes an annual event, NISS will again work with our partners in official statistics to plan for it.

NISS/SAMSI Affiliates

Industries

AT&T Labs-Research, Florham Park, NJ
Avaya Labs, Basking Ridge, NJ
GlaxoSmithKline, Research Triangle Park, NC
    and Collegeville, PA
MetaMetrics, Inc., Durham, NC
PNYLAB, LLC, Princeton, NJ
RTI International, Research Triangle Park, NC
SAS Institute, Cary, NC
SPSS, an IBM Company, Chicago, IL
Telecordia Technologies, Piscataway, NJ
Yahoo! Research Laboratory,
    Silicon Valley, CA

Government Agencies & National Laboratories

Bureau of Labor Statistics, 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 Geospatial-Intelligence Agency,
    Bethesda, MD
National Security Agency, Ft. George W.
    Meade, MD
Office of the Comptroller of the Currency
    (Treasury Department), Washington, DC
US Census Bureau, Washington, DC

Universities

Carnegie Mellon University, Department of
    Statistics
Columbia University, Department of
    Biostatistics
Cornell University, Department of Statistical
    Science
Duke University, Departments of Statistical
    Science and Mathematics
Duke University Medical Center; Department
    of Biostatistics and Informatics
Emory University, Department of
    Biostatistics
Florida State University, Department of
    Statistics
Georgia Institute of Technology - School
    of Mathematics and School of Industrial
    Systems and Engineering
George Mason University, Department of
    Statistics
Georgetown University Medical Center,
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    Bioinformatics, and Biomathematics
Indiana University, Department of Statistics
Iowa State University, Department of
    Statistics
Johns Hopkins University, Department of
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    Statistics
Purdue University, Department of Statistics
Rice University, Department of Statistics
Southern Methodist University, Department of
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Stanford University, Department of Statistics
Texas A&M University, Department of Statistics
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    Department of Statistics
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University of South Carolina, Department of
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Virginia Commonwealth University,
    Departments of Biostatistics and Statistical
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