NISS

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NISS Corporate Affiliates Program

The Corporate Affiliates Program is jointly sponsored by the **National Institute of Statistical Sciences (NISS)**, in close cooperation with the **Statistical and Applied Mathematical Sciences Institute (SAMSI)** and offers membership to industrial organizations in the statistical and applied mathematical sciences. The Corporate Affiliates Program takes advantage of the complementary missions (and proximity) of NISS and SAMSI, offering researchers from participating organizations important opportunities for shaping and participating in the activities of both institutes, and for interaction with other participants.

The American Statistical Association recognized the vitality and importance of the program by presenting its 2005 SPAIG Award to the NISS Affiliates

Missions

National Institute of Statistical Sciences (NISS): To identify, catalyze and foster high-impact *cross-disciplinary research* involving the statistical sciences.

Statistical and Applied Mathematical Sciences Institute (SAMSI): To forge a new *synthesis of the statistical sciences and the applied mathematical sciences with disciplinary science* to confront the very hardest and most important data- and model-driven scientific challenges.

NISS Corporate Affiliates Program: To conduct activities and services encompassing *dissemination, education, research, professional development and the formation of relationships* that simultaneously deliver high value to its members and support the missions of NISS and SAMSI.

Networking and Information Exchange Benefits

As a NISS corporate affiliate, your organization will benefit from interactions with colleagues at NISS - (and SAMSI-) sponsored technology days, short courses, workshops and planning functions.

Corporate affiliates enjoy unique opportunities for interaction, information exchange, and networking with like-minded colleagues and their academic (30 departments) and government (10 agencies and national laboratories) counterparts. Affiliates events provide an ideal venue for staff wishing to orient their research in cross-disciplinary directions. Participation in SAMSI Programs provides opportunities for statisticians and applied mathematicians to establish collaborations. Affiliates benefit from interactions with colleagues at NISS- and SAMSI-sponsored technology days and workshops, as participants on cross-disciplinary research teams, and at planning meetings. Visits of various lengths to SAMSI offer opportunities for establishing collaboration and interchange with leading researchers.

Human Resources and Professional Development Benefits

Through its national reach within the statistical and mathematical sciences community, NISS serves your organization by supporting recruiting and professional development. Advance notice and preferential consideration are given to Affiliates. Current activities include:

- **Federal Agency Affiliate Postdoctoral Program**, under which NISS appoints postdoctoral fellows for 2-3 year terms in challenging assignments at the Federal agencies, principally in Washington, DC.

- **CRSC/SAMSI Industrial Mathematical and Statistical Modeling Workshop (IMSMW)**, in which graduate students in mathematics and statistics, working in teams, explore challenging real-world problems arising in industrial and government laboratory research. Corporate affiliates are welcome and encouraged to submit problems for the IMSMW.

- **SAMSI Undergraduate Summer Workshop**, a one-day activity attended by college juniors and seniors (and sponsoring faculty) providing instruction and hands-on experience with real-world problems involving statistics and applied mathematics.

- **NISS Affiliates Internship Program**, that matches graduate students from affiliate institutions to exciting summer internships at NISS corporate, government and national laboratory affiliates, as well as at NISS itself. By means of a single application, students may apply for all NAIP Internships.

- **Affiliates Job Listing Service**, that functions as a portal to job listings for all affiliates, and is available at `http://www.niss.org/affiliates/ajls.html`.

Research Benefits

As a NISS corporate affiliate your representative will participate in the planning of NISS and SAMSI research initiatives. Affiliates are kept well informed of planning activities, and their input is solicited at scheduled planning forums. Members have access to NISS and SAMSI directors and are kept informed of opportunities for participation in NISS and SAMSI research.

Monthly email updates and a quarterly newsletter provide timely event-specific information and program updates regarding the progress of NISS and SAMSI initiatives and planning activities. Communications highlight opportunities for participation.

Corporate affiliates inform the nature and direction of cross-disciplinary research programs at NISS. Corporate, government and national laboratory affiliates call attention to research problems of broad-reaching importance and provide required data. NISS organizes research teams to develop proposals for financial support of the work and to carry out the research. Typically such teams are a mix that includes personnel from affiliates organizations in addition to one or more NISS postdoctoral fellows.

SAMSI conducts three one- or two-semester programs each year focused on issues of theory and methodology in the statistical and applied mathematical sciences, and framed by problems in disciplinary science. Some SAMSI programs interact strongly with cross-disciplinary projects at NISS, while others arise from the national community. The SAMSI agenda is a key topic at affiliates planning meetings and the presence of SAMSI directorate members at these meetings offers the opportunity to influence the future direction of SAMSI Research Programs.

SAMSI Research Programs for 2005-6

Astrostatistics (Spring 2006)

Historically, astronomy has served as fertile ground for stimulating the growth of new statistical and mathematical methodologies. Conversely, coping with the current and future needs of astronomy missions requires concerted efforts by cross-disciplinary collaborations involving astronomers, computerscientists, mathematicians and statisticians. This semester-long program will provide a crossroads where researchers at the interface between statistics, applied mathematics, astronomy, and particle physics can congregate and initiate lasting collaborations.

Working Groups are planned on Exoplanets, Statistical Issues in Particle Physics, Surveys and Population Studies, Gravitational Lensing and Source Detection and Feature Detection.

Program Leaders: G. J. Babu (Penn State), Eric Feigelson (Penn State), Tom Loredo (Cornell University), Donald Richards (Penn State), Alanna Connors (Eureka Scientific), Larry Wasserman (Carnegie Mellon University); Jim Berger (SAMSI; Directorate Liaison), Peter Bickel (UC Berkeley; National Advisory Committee Liaison)

Financial Mathematics, Statistics and Econometrics (Fall 2005)

The goal of a SAMSI program in Financial Mathematics, Statistics, and Econometrics is to bring together these disciplines, and focus on the major challenges in the three essential tasks: modeling, data analysis and computation, in applications ranging from financial and energy derivatives to real options and defaultable securities.

Working groups in this program are carrying out research on Computational Issues, Credit Risk, Levy Processes, Model Uncertainty and Portfolio Management.

Program Leaders: Marco Avellaneda (NYU), Jean-Pierre Fouque (NC State), Eric Ghysels (UNC), Ronnie Sircar (Princeton), Ruey Tsay (University of Chicago), Thaleia Zariphopoulou (University of Texas Austin); Ralph Smith (SAMSI; Directorate Liaison), John Lehoczky (Carnegie-Mellon University; National Advisory Committee Liaison)

National Defense and Homeland Security (NDHS) (entire year)

For several years, groups of researchers have been seeking to define appropriate roles for the statistical sciences, applied mathematical sciences and decision sciences in problems of NDHS. Many efforts have focused on short-term applicability of existing methods and tools, rather than articulating or initiating a longer-term research agenda. Moreover, none of them has really spanned the statistical sciences, the applied mathematical sciences and the decision sciences. Perhaps most important point is that, despite progress, these efforts have not "jelled" to produce a self-sustaining research momentum in the statistical sciences, applied mathematical sciences and decision sciences on problems of NDHS. The SAMSI NDHS program is meant fill this gap, in part by providing proof of concept that the necessary collaborations are feasible.

Working Groups are studying Anomaly Detection, Agricultural Systems, Data Confidentiality and Social Networks.

Program Leaders Committee: James Crowley (SIAM), Lawrence Cox (National Center for Health Statistics), Jon Kettenring (Drew University), and Nell Sedransk (NISS); Alan F. Karr (NISS; Directorate Liaison), Sallie Keller-McNulty (Rice University; National Advisory Committee Liaison)

NISS Cross-Disciplinary Research

As a NISS corporate affiliate, your representative will attend planning meetings at which topics for future NISS research are formulated. The areas described below indicate the nature, scope and affiliate participation in cross-disciplinary research taken by NISS.

Digital Government: Development of theory, methodology and software systems that enable Federal statistical agencies to meet their mandates to both protect confidentiality of their data and disseminate useful information derived from those data. **Data Confidentiality**: George T. Duncan, CMU; Stephen E. Fienberg, CMU; Michael Larsen, Iowa State; Stephen Roehrig, Aleksandra Slavkovic, Penn State; Lynne Stokes, SMU. Involving government affiliates: BLS, Census, NASS, NCES and NCHS. **Data Confidentiality, Data Integration and Data Quality**, involving, in addition, BTS, Michigan and Purdue.

Data Quality: initial projects with BTS and EPA, and the DG II project.

Education Statistics: Studies and reports for the NCES addressing such topics as high school graduation, completion and dropout indicators, US participation in international assessments, and surveys to determine Title IX compliance.

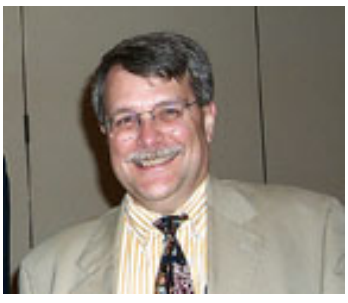
Social Networks: Models for dynamics of social networks: Kenneth Bollen, UNC; David Banks, Duke; H. T. Banks, NCSU; Kathleen Carley, CMU; Negash Medhin, NCSU

Software Engineering: Techniques for software testing and profiling based on light-weight instrumentation of fielded software: David Notkin, Washington; Adam Porter, Maryland; Alex Orzo, Georgia Tech; Douglas Schmidt, Vanderbilt.

NISS Technical Meetings

NISS workshops, short courses, Technology Days and Problem Days are planned with the primary objective of serving Affiliates. As a NISS affiliate, you can send personnel to attend planning meetings at which topics for future NISS technical meetings are developed, as well as to the events themselves.

- **Technology Days** – presenting the findings of NISS research to the affiliates: 4/2005—NISS-developed Software, 11/2003 —Data Confidentiality, 3/2003—Internet Tomography, 3/2003—Statistical Issues in Proteomics, 10/2002—Statistical Aspects of High Throughput Screening, 2/2002—Case Studies in Data Quality
- **Tutorial and Exploratory Workshops**: 10/2005—Overarching Issues in Risk Analysis, 9/2005—The Future of Data Analysis: A Conference in Honor of Jon Kettenring, 7/2005—Metabolomics, 3/2005—Total Survey Error, 11/2004—Statistical Risks and Counterterrorism, 3/2004—Affiliates Problem Day
- **Short Courses**: Multiple times—Computer Experiments, presented by Jerome Sacks and William J. Welch. The $1,500 registration fee for short courses is waived for affiliates.



Proposal Development Grants Benefit

A competitive grants program supported by the Affiliates Proposal Development Fund provides grants to NISS Corporate Affiliates and NISS/SAMSI University Affiliates to help pay expenses associated with the development of cross-disciplinary research proposals. Awards of up to $25,000 are planned each year. Allowable costs include workshops, acquisition of test-bed data, and pilot analyses (but not PI and co-PI salaries). For details, see http://www.niss.org/affiliates/apdf/apdf.html

Annual Planning and Business Meetings for Affiliates

As a NISS corporate affiliate, your representative will attend annual meetings where information is given and opportunities are provided to participate in planning of future directions. Regularly scheduled meetings are:

- Affiliates Planning Meeting, on the first Friday in March, at either an affiliate site or NISS headquarters
- JSM Affiliates Meeting, in August on Sunday of the Joint Statistical Meetings

Fees and Financial Benefits

The annual membership fee for NISS Corporate Affiliates is $10,000 per year. Membership runs from January 1 through December 31. A significant portion of this fee is returned directly to affiliates to facilitate their full engagement in the program.

- Affiliates Reimbursement Accounts (ARAs) support participation by affiliate personnel in NISS and SAMSI events, including Technology Days and workshops, up to an annual total of $2,500 per affiliate per year. Unexpended funds may be carried forward. ARAs may also be used for events co-sponsored by NISS, which include Interface Meetings, and special conferences. Recent examples of the latter are the October 2005 conference "Complex Datasets and Inverse Problems: Tomography, Networks, and Beyond: A Conference in Memory of Yehuda Vardi," the 2004 Quality & Productivity Research Conference and MMR 2004, and the Fourth International Conference on Mathematical Methods in Reliability Methodology and Practice.
- Expenses incurred by one affiliate representative attending the annual affiliates planning meeting (held each March, at either an affiliate site or NISS headquarters) are reimbursed. Typically, this meeting is scheduled in conjunction with a technology day so that ARA funds need not be tapped to attend the technology day.
- Registration fees of $1,500 normally charged for NISS short courses are waived for affiliates.

For Additional Information

Contact Alan Karr or Nell Sedransk at 919-685-9300, or visit the NISS or SAMSI home pages:

http://www.niss.org

http://www.samsi.info

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NISS Affiliates

Corporations

Avaya Labs (Basking Ridge, NJ)
Aventis Pharmaceuticals (Bridgewater, NJ)
Bell Labs - Lucent Technologies (Murray Hill, NJ)
General Motors (Detroit, MI)
GlaxoSmithKline (RTP, NC and Collegeville, PA)
ICAGEN, Inc. (Durham, NC)
Merck & Co. (West Point, PA)
Metabolon, Inc. (Durham, NC)
MetaMetrics (Durham, NC)
Nuevolution (Copenhagen, Denmark)
Pfizer Inc. (Groton, CT)
RTI International (Research Triangle Park, NC)
SAS Institute (Cary, NC)
SPSS, Inc. (Chicago, IL)
Telcordia Technologies (Piscataway, NJ)
Wyeth (Collegeville, PA)

Government Agencies and National Laboratories

Bureau of the Census (Washington, DC)
Bureau of Labor Statistics (Washington, DC)
Bureau of Transportation Statistics (Washington, DC)
Los Alamos National Laboratory (NM)
National Agricultural Statistics Service (Fairfax, VA)
National Center for Education Statistics (Washington, DC)
National Center for Health Statistics (Hyattsville, MD)
National Institute of Standards and Technology (Gaithersburg, MD)
National Security Agency (Fort George Meade, MD)

NISS/SAMSI University Affiliates

American University (Mathematics and Statistics)
Carnegie Mellon University (Statistics)
Duke University (Statistics and Decision Sciences, and Mathematics)
Emory University (Biostatistics)
University of Florida (Statistics)
Florida State University (Statistics)
George Mason University (Statistics)
University of Georgia (Statistics)
University of Illinois Urbana-Champaign (Statistics)
Iowa State University (Statistics)
University of Iowa (Statistics)
Johns Hopkins University (Mathematical Sciences)
University of Maryland Baltimore County (Mathematics and Statistics)
University of Michigan (Statistics and Biostatistics)
University of Missouri - Columbia (Statistics)
North Carolina State University (Mathematics)
North Carolina State University (Statistics)
University of North Carolina at Chapel Hill (Mathematics)
University of North Carolina at Chapel Hill (Statistics)
University of North Carolina at Chapel Hill (Biostatistics)
Oakland University (Mathematics and Statistics)
Ohio State University (Statistics)
Pennsylvania State University (Statistics)
Purdue University (Statistics)
Rice University (Statistics)
Rutgers University (Statistics)
University of South Carolina (Statistics)
Southern Methodist University (Statistical Science)
Stanford University (Statistics)
Texas A&M University (Statistics)
Virginia Commonwealth University (Biostatistics)