NISS

Parameters

FALL | 2017

DIRECTOR'S NOTES

NISS

This is the first newsletter since I accepted the position of director, which was announced at JSM in Baltimore. It has been a busy introduction for me, spending several weeks in North Carolina, where NISS began and we maintain a presence, and in Washington DC at our offices on Connecticut Ave. I am planning to develop a hub of NISS at Penn State with support from the Eberly College of Science.

There have been many exciting activities in the works, and the events tab on our website shows some of the upcoming activities and workshops. The articles in this newsletter show the range of activities that NISS has been involved in. In September we offered our first of several workshops on R and Spark, and we initiated a new Webinar series and are planning additional activities and forums for both our academic, industry and government affiliates.

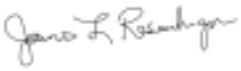
The new mission of NISS shifts the focus from cross-disciplinary research in statistics to addressing the role of statistics in the growing data science challenges that come with big data, focusing on the data science and analytic tools.

At JSM I met many of the liaisons from our current affiliates, and many persons from organizations and academic departments, with whom I would like to discuss the benefits of joining NISS as an affiliate. Please contact me. As the restructured NISS affiliate program develops I am envisioning forums where individuals from our academic affiliates engage in discussions about the needs of trained data scientists in industry and government, equipped to solve problems and meet their needs with timely solutions.

Nell Sedransk continues in the Washington DC office of NISS directing the ongoing research and training projects with the Department of Agriculture and the Department of Education, two of our government affiliates. David Banks in North Carolina has been working to organize workshops and pursue new activities with the Department of Transportation and the Department of Justice.

My efforts are focused on developing new activities to connect our academic affiliates with industry and government. NISS has a 25-year history of linking academic affiliates with colleagues in industry and government / national labs around cross-disciplinary research. Going forward we see new opportunities to communicate the important role of statistics in the exploding field of data science. I encourage all academic departments with an interest in how statistics and data science contributes to solving problems faced by industry and government to consider joining NISS. Affiliating with NISS provides a concrete way the department can demonstrate its outreach to industry and government.

Sincerely,



James L. Rosenberger

ABOUT NISS

NISS is a national institute that delivers high-impact research in science and in public policy by leveraging the rich expertise of its staff with that of its base of affiliated organizations in academia, industry, and government. NISS works on issues where information and quantitative analysis are keys to solutions and decisions. NISS functions in three ways: as an expert advisor, as a basic researcher, and as a collaborator.

OUR MISSION

The National Institute of Statistical Sciences (NISS) is an independent research organization that serves as a neutral, objective expert in delivering research in science and public policy to its affiliates in academia, industry and government. NISS identifies, catalyzes and fosters high-impact cross-disciplinary and cross-sector research involving the statistical sciences.

NISS SPREADS ITS WINGS AT THE JSM

At the NISS JSM Reception 2017

NISS' participation in one of the largest Joint Statistical Meetings (JSM) held in Baltimore, Maryland, from July 30th to August 3rd, 2017, was a success and well-attended.

NISS kicked off the event on Sunday by hosting a **Luncheon Workshop for Affiliates** attended by more than 40 members who actively participated in the workshop. Nell Sedransk, NISS Director of the DC office, opened up the luncheon workshop by welcoming and thanking Affiliates and prospective Affiliates for being a part of the workshop. Sedransk and David Banks, NISS Assistant Director, made a few announcements about NISS services, courses, and expansion plans.

At the Affiliate Luncheon after the introductions, Sedransk honored NISS Board Member Phillip Kott with the **NISS Distinguished Service Award** recognizing his extraordinary service that significantly advanced NISS and its mission. Speaking about Kott's contributions, Sedransk said, "Phil has spearheaded the development and continuing success of the NISS series of Fall Conferences on Contemporary Issues in Survey Sampling. These have attracted participants from all sectors, government, industry and academia; and have continued to expand as they address technical advances and practical implementations for large-scale surveys and smaller, specialized data collections."

Following lunch, two presentations were made: NISS Board Member and H2O Chief Scientist Leland Wilkinson presented on "Data Analysis, Statistics, Machine Learning," and NISS Senior Mentor and Professor of Statistical Science at Duke University Jerry Reiter presented on "Big Data in the Federal Government." Both the presentations generated a lot of interest and were followed up with floor discussion and questions.

On Monday evening NISS hosted a reception inviting Affiliates, prospective Affiliates, Postdoctoral Fellows, and NISS well-wishers. Sedransk honored Professor Jun Liu of Harvard University with the **Jerome Sacks Award** for Cross-Disciplinary Research recognizing his groundbreaking research contributions at the interface of statistics and biology, including algorithms for protein sequence analysis, DNA sequence motif finding, gene expression analysis, and regulatory network elucidation that have become important tools for computational biologists.

PROFESSOR JUN LIU, Harvard University, speaks after receiving the NISS Jerome Sacks Award

NISS Board Chairwoman Mary Batcher honored two Postdoctoral Fellows for their distinguished careers in statistics. Professor Min-ge Xie of Rutgers University, was recognized for his research on the foundations of statistics and his longstanding commitment to his students and the profession; and Dr. Gomatam, a statistician with the Food and Drug Administration, was recognized for her unique career pathway to the federal government and honored for her contributions to the review and approval of safe and effective medical products.

NISS

NISS HOSTED EVENTS

R AND SPARK: TOOLS FOR DATA SCIENCE WORKFLOWS
When: September 30, 2017 to October 1, 2017
Where: University of California, Riverside, California, 92521, U.S.

NISS/WSS WORKSHOP ON INFERENCE FROM NONPROBABILITY SAMPLES
When: September 25, 2017
Where: Bureau Labor Statistics Conference Center, Washington, District of Columbia, 20212, U.S.

R AND SPARK: TOOLS FOR DATA SCIENCE WORKFLOWS
When: September 14-15, 2017
Where: American Statistical Association Headquarters, Alexandria, Virginia, U.S.

NISS-MERCK VIRTUAL MEET-UP
When: September 12, 2017
Where: Virtual

NISS SPONSORED EVENTS

DESIGN AND ANALYSIS OF EXPERIMENTS (DAE 2017) CONFERENCE
When: October 12-14, 2017
Where: UCLA, Los Angeles, California, U.S.

WOMEN IN STATISTICS AND DATA SCIENCE (WSDS) 2017
When: October 19-21, 2017
Where: Hyatt Regency, La Jolla, California, U.S.

2018 CONFERENCE ON STATISTICAL PRACTICE (CSP) | AMERICAN STATISTICAL ASSOCIATION (ASA)
When: February 15-17, 2018
Where: Marriott Portland Downtown Waterfront, Portland, Oregon, 97201, U.S.

SIXTH NOGGINS 2018 WORKSHOP
When: April 13, 2018
Where: University of Georgia, Athens, Georgia, 30602, U.S.

NELL SEDRANSK congratulates **JIM ROSENBERGER** as the new NISS Director

One of the highlights of the reception was the **announcement of the new NISS Director**. On behalf of the NISS Board, staff and members, Batcher welcomed Jim Rosenberger as the new NISS Director. Rosenberger will succeed Sedransk, who will continue to be the director of the NISS DC office. Rosenberger received a big round of applause with many of the attendees expressing their desire to work with him in the near future. In his message to the gathering, Rosenberger said, "I am very pleased to join NISS and look forward to working with our affiliates to build stronger connections between industry, government & academia about Data Science and Statistics."

The **NISS Expo Booth**, which was open on all event days from 9 a.m. to 5:30 p.m., generated a lot of interest among JSM Expo attendees who visited the booth to learn more about NISS and about the various opportunities to engage with NISS. Additionally, many students from different universities stopped by the NISS Booth looking for a career, fellowship and internship opportunities with NISS. We would like to thank everyone who visited us.

All in all, "I am very pleased by the keen interest in NISS and the support expressed by the many visitors to the NISS booth," says Rosenberger. Speaking about NISS' presence nationally and its expansion plans, Rosenberger says, "Our presence at the JSM provided an opportunity to clarify and amplify that NISS has moved beyond a single location in North Carolina, and now has its major office in Washington, DC. For the future, NISS will be developing a HUB at Penn State and planning additional locations in the northeast and the west coast."

GABRIEL HUERTA, NISS Board Member and Professor of Statistics at University of New Mexico, attends to visitors at the NISS JSM Booth

LELAND WILKINSON, NISS Board Member and H2O Chief Scientist, making a presentation on "Data Analysis, Statistics, Machine Learning" at the NISS Affiliate Luncheon

JAMES ROSENBERGER, NISS Director, shares his vision for NISS at the NISS JSM Reception 2017

NISS welcomes Dr. James Rosenberger as the new NISS Director, effective from August 1, 2017. The announcement was made by Chairwoman Mary Batcher at the NISS JSM Reception on July 31, 2017. Rosenberger succeeds Dr. Nell Sedransk.

The decision was made after an extensive search process which began in the Fall of 2016. The Search Committee made its recommendation of James Rosenberger as its leading candidate to the Executive Committee of the Board of Trustees. Speaking about Rosenberger at the NISS reception, Batcher says, "Rosenberger is highly regarded and well-liked in the statistical community. He has held several leadership roles in the American Statistical Association and is well-qualified to lead NISS through a period of expansion. His continuing association with Penn State is also valuable."

Rosenberger is the former Head of the Department of Statistics at the Pennsylvania State University. Under his leadership, the department recruited top-notch faculty who excelled during their time at the university. The department grew in terms of publications, citations, and federal grant support. "Overall the national prestige of the department increased," says, Andrew Stephenson, Associate Dean for Research and Innovation, Penn State University.

Adding, Stephenson says, "Statistics maintained its reputation around campus for outstanding pedagogy and Statistics gained the reputation as being a well-run and highly functional department. Most attribute these successes to Jim's attitude. He saw the role of being a department head as a 'service role'. Jim's a rock-solid guy who always had the best interests of the department in mind."

Echoing Stephenson, David Hunter, Professor and Head, Department of Statistics at the Penn State University, said, "Jim has a strong moral compass and a sense of civic duty that extends to his work. I really appreciate having him as a colleague, since his previous experience as department head has enabled him to advise me from time to time."

The NISS association with Penn State partly arose because of Jim's desire to establish several NISS hubs around the country with various themes. Given Penn State's multiple strong and highly quantitative social science departments, it's a natural place for a hub with the theme of advancing statistical collaboration in the social sciences, says Hunter.

Rosenberger's research interests include linear models, design and analysis of experiments and bioinformatics and genomics. He is a Fellow of the American Statistical Association (ASA) and the American Association for the Advancement of Science (AAAS) and a member of the ASA, AAAS, the Biometrics Society, and the Institute of Mathematical Statistics (IMS).

At the JSM 2016 in Chicago, Rosenberger was honored with the American Statistical Association's prestigious Founders Award recognizing his career-long support of and involvement in the ASA. Speaking about Rosenberger's long commitment of 45 years to the ASA, Ronald Wasserstein, Executive Director, American Statistical Association, says, "I love working with Jim. He is a thoughtful leader who is committed to the success of ASA and NISS. Because he knows both organizations well, he is uniquely positioned to further strengthen the partnership between these two organizations."

"I am very pleased to join NISS and look forward to working with our Affiliates to build stronger connections between industry, government & academia about Data Science and Statistics," says Rosenberger. NISS is at a critical juncture, having separated this year from SAMSI, the NSF funded Statistical and Applied Mathematical Science Institute. For the past decade, SAMSI was housed in the NISS building in RTP and worked cooperatively on workshops and programs. "This synergistic relationship with shared space and postdocs working together was beneficial, but also caused some confusion in the community about distinguishing their separate missions. Therefore, creating a separate and distinct mission for NISS is a short-term challenge which we will focus on immediately by hosting events in various locations and building a national network," says Rosenberger.

Rosenberger succeeds Sedransk who served as the Director of NISS since 2015. Speaking about Sedransk's contribution to NISS at the NISS Reception, Batcher said, "During her tenure, Nell led NISS to a solid financial footing, increased the engagement of the Board of Trustees, and provided outstanding leadership to the organization." Nell will continue as Director of the DC Office where she will focus on her projects and working with the postdocs."

Data Science challenges the field of Statistics to provide new routes to answers in a Big Data world. For NISS the response is the expansion of the leadership team, diversification of the senior expertise and widening the sphere of applications and impact, says Sedransk, adding, "Rosenberger is well-suited to leading this vision as NISS Director from his association with NISS for over a decade, taking on various roles with the Board of Trustees and several NISS Committees as well as from his leadership roles in the Statistics Department at The Pennsylvania State University and from the professional statistics community nationally and internationally."

NISS was founded in North Carolina more than 25 years ago with support from the state and the three universities in the Research Triangle. The organization's vision was national and in recent years it has expanded primarily in the Washington DC area, with research and policy related activities with government agencies. "My current goal is to expand the outreach of NISS to additional agencies in DC and also broaden the base to additional industry affiliates to provide linkages with the academic community through our affiliates," says Rosenberger.

Penn State has extensive linkages to the industry through our alumni and existing programs, so Rosenberger has proposed creating an additional hub at Penn State while maintaining the hubs in North Carolina and DC. Thus, part of the expansion plan is to have a NISS hub at the Pennsylvania State University. "We are excited that Pennsylvania State and Statistics is playing a larger role in NISS," says Stephenson.

Rosenberger is the public face of NISS in establishing new relationships and continuing existing relationships with academic institutions, industry, and government agencies. Batcher says, "We look forward to working with Rosenberger as the NISS Director and together aim to expand NISS geographically and strengthen the Affiliate program. Rosenberger brings the leadership ability, knowledge, and a network of statistical colleagues to meet these opportunities."

JUN S. LIU RECEIVES THE 2017 NISS JEROME SACKS AWARD FOR CROSS-DISCIPLINARY RESEARCH

DR. JUN S. LIU (center) flanked by NISS Board Chairwoman **MARY BATCHER** (left) and NISS Director (DC office) **NELL SEDRANSK**

The National Institute of Statistical Sciences presented **Dr. Jun S. Liu,** Professor of Statistics at Harvard University with the 2017 NISS Jerome Sacks Award for Cross-Disciplinary Research. The award recognizes sustained, high-quality cross-disciplinary research involving the statistical sciences. The award was presented to Liu by Mary Batcher, NISS Board Chairwoman, at the 2017 NISS JSM Reception.

Every year, the NISS Awards Committee invites nominations for the award. The nominations are reviewed by the committee and then the most qualified candidate is selected as the winner. Liu was selected for his groundbreaking research contributions at the interface of statistics and biology, including algorithms for protein sequence analysis, DNA sequence motif finding, gene expression analysis, and regulatory network elucidation that have become important tools for computational biologists.

Receiving the award, Dr. Liu said, "I feel extremely honored to be a recipient of the Jerome Sacks Award. Looking at the name list of former Sacks Award recipients and their achievements, I also feel so much humbled. This award is to celebrate achievements in interdisciplinary research. By its nature, it is not just for me. It is for all those who have taught me science, who have accepted me into their research teams, and all those scientists who have appreciated my statistical contributions."

Dr. Liu received his BS degree in mathematics in 1985 from Peking University and Ph.D. in statistics in 1991 from the University of Chicago. In 2002, Dr. Liu won the prestigious COPSS Presidents' Award which is given annually to one individual under the age of 40. In 2010, he was awarded the Morningside Gold Medal in Applied Mathematics. The International Chinese Statistical Association honored him with the Outstanding Achievement Award in 2012 and the Pao-Lu Hsu Award in 2016.

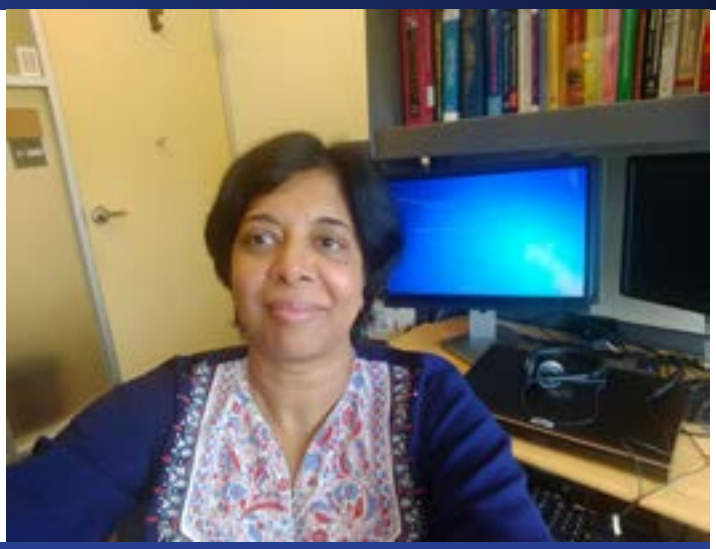
Dr. Liu has made fundamental contributions to statistical computing and Bayesian modeling. He pioneered sequential Monte Carlo (SMC) methods and invented novel Markov chain Monte Carlo (MCMC) techniques. His theoretical and methodological studies on SMC and MCMC algorithms have had a broad impact in many areas. Dr. Liu has also pioneered novel Bayesian modeling techniques for discovering nonlinear and interactive effects in high-dimensional data.

We live in the digital age of big data which is big in quantity and complex in structures and the underlying science. A big-data research project is almost surely interdisciplinary research, and will almost surely require interdisciplinary training and a collaborative spirit from the involved statisticians. I feel very fortunate to have participated in this type of research early in my career, and to see the growing importance of interdisciplinary research not only for science but also for the development of core statistical methodologies and thinking, says Dr. Liu.

The NISS Board of Trustees established the Jerome Sacks Award for Cross-Disciplinary Research in the year 2000 to honor Sacks' service as the founding director of NISS. The annual prize of $1,000, presented at the NISS JSM Reception, recognizes sustained, high-quality cross-disciplinary research involving the statistical sciences.

SHANTI GOMATAM AND MINGE XIE RECEIVE THE 2017 NISS FORMER POSTDOC ACHIEVEMENT AWARDS

DR. XIE (right), recipient of the 2017 NISS Former Postdoc Achievement Award, with **NELL SEDRANSK** (left)



DR. GOMATAM, recipient of the 2017 NISS Former Postdoc Achievement Award

NISS is proud to honor former postdoctoral fellows, Dr. Shanti Gomatam and Dr. Minge Xie, with the 2017 NISS Postdoc Achievement Award. The awards were presented to Gomatam and Xie at the 2017 NISS JSM Reception.

The NISS Awards Committee made the selection decision after a series of discussions led by Christy Chuang-Stein, NISS Board Member, who chaired the awards committee. She commented that "A longstanding goal of NISS is to help develop statisticians through post-doctoral training. The Postdoc Achievement Award celebrates this mission by recognizing former postdocs who have had distinguished careers."

Although NISS has been mentoring postdoctoral fellows since 1993, the NISS Former Postdoc Achievement Award was introduced in 2015 as part of the 25th anniversary of NISS.

Dr. Gomatam is a Mathematical Statistician at the U.S. Food and Drug Administration. The award recognizes Gomatam's significant contributions to the review and approval of safe and effective medical products.

Gomatam couldn't be present at the NISS JSM Reception to receive the award, but in her message, she says, "I was truly honored to have been nominated for, and to have received, the NISS postdoctoral award. My time at NISS was a turning point in my career moving me toward a career in public service with the U.S. Food and Drug Administration (FDA) – it is very satisfying for me to be able to make a useful contribution to public health while being exposed to different scientific and medical areas."

After obtaining a Ph.D. from the Florida State University Statistics Department in 1995, Gomatam did a two-year post-doctoral visit at the University of Florida's Biostatistics division for a couple of years before accepting an assistant professorship at the University of South Florida in the Mathematics department. Gomatam spent several years at NISS as a Postdoctoral fellow under the mentorship of Alan Karr working primarily on data confidentiality problems for the National Center for Education Statistics (NCES). After her appointment with NISS, Gomatam joined the FDA's Center for Devices and Radiological Health (CDRH) working on several interesting scientific areas using an array of statistical methods.

After spending 10 years with CDRH, Gomatam joined the Safety Division of the FDA's Center for Drug Evaluation and Research (CDER) in 2014. At CDER she worked on large randomized cardiovascular outcomes trials.

Dr. Xie is a Professor of Statistics at the Rutgers University. The award recognizes Xie's research on the foundations of statistics and his longstanding commitment to his students and profession.

Receiving the award at the NISS JSM Reception, Xie said, "NISS is a unique institute in our profession. NISS has always been truthful to its mission to deliver high-impact research in science and in public policy, and also to train the next generation of young statisticians and scientists who can effectively communicate across disciplines. I would like to thank NISS for its role played in my career, and I also wish NISS the best of luck in its future."

Growing up, Xie always wanted to do physics or be an engineer. However, he went on to study math at the University of Science and Technology of China from where he received his bachelor's degree in mathematics. He came to the U.S. and got his Ph.D. degree in statistics from the University of Illinois at Urbana-Champaign. The project of his Ph.D. thesis was a NISS project. After the NISS postdoc appointment, Xie started his academic career as an Assistant Professor at Rutgers Statistics Department in 1997. He is a distinguished professor of statistics at Rutgers and has also served as the director of Rutgers Office of Statistical Consulting (OSC) for many years.

Speaking about his long association and work with NISS, Xie says, "I learned how to do research and how to think as a statistician. The NISS projects, together with my graduate education, played a key role to transfer me from a math undergraduate to a real statistician. I also gained many insights of the pharmaceutical industry. The experience has been very valuable in these many years for me serving as the Director of Rutgers OSC and working with people in the pharmaceutical industry in New Jersey."

Passionately speaking about his time spent with NISS, Xie goes on to say: "I can say that the NISS and my graduate school training had a huge impact on my career. I remember that in the feedback to my first NSF (National Science Foundation) proposal submitted right after I joined Rutgers, the panel's summary stated that "the young PI is well-trained and has the unique combination and ability to see through the lenses of both theory and application." You can imagine what an encouragement that was to a green assistant professor and I still remember it after 19 years."

PHILLIP KOTT RECEIVES THE 2017 NISS DISTINGUISHED SERVICE AWARD

DR. PHILLIP KOTT, Senior Research Statistician, RTI International's Center of Excellence for Complex Data Analysis

Dr. Phillip Kott, a Senior Research Statistician at the Research Triangle Institute International's Center of Excellence for Complex Data Analysis, received the 2017 NISS Distinguished Service Award. Kott has been serving on the NISS Board of Trustees since 2011. The award recognizes Kott's extraordinary service that advances NISS and its mission.

Every year, one or more recipients are chosen by a committee composed of the Vice-Chair of the Board, the chair of the Awards Committee of the Board and the Director. The award was presented by Nell Sedransk, NISS Director-DC, at the 2017 NISS JSM Affiliate Luncheon Workshop. "It is a real pleasure to present Phil Kott with the NISS Distinguished Service Award. Phil has taken on a variety of roles and made valuable contributions to NISS, as Affiliate Liaison, as Trustee, and as a Member of the Board of Trustees Executive Committee," says Sedransk.

Kott is a member of the NISS Affiliate Committee and he actively participates in the work of the committee and its meetings. Kott suggested three workshops that NISS presently offers. The first workshop is on the analysis of data from complex survey samples; the second workshop is on handling nonignorable nonresponse; and the third workshop is on inference from nonprobability samples which is a partnership workshop with the Washington Statistical Society (WSS). The NISS/WSS Workshop on Inference from Nonprobability Samples will be held on September 25, 2017, at the Bureau Labor Statistics Conference Center.

Receiving the award Kott humbly said, "It was indeed an honor to receive the award and completely unexpected since all I did was suggest ideas for workshops I wanted to participate in."

Sedransk says, "Phil has spearheaded the development and continuing success of the NISS series of Fall Conferences on Contemporary Issues in Survey Sampling. These have attracted participants from all sectors, government, industry and academia; and have continued to expand as they address technical advances and practical implementations for large-scale surveys and smaller, specialized data collections."

Kott is an expert in survey sampling theory and practice, including calibration weighting, multiphase sampling, the analysis of survey data, and variance estimation. As a fellow of the American Statistical Association (ASA), Kott has served as chair of both the ASA's Survey Research Methods Section and Council of Chapters as well as president of the Washington Statistical Society.

Kott received a Presidential Rank Award in 2007 and an ASA Section on Statistics and the Environment Distinguished Achievement Medal in 1997.

R AND SPARK: TOOLS FOR DATA SCIENCE WORKFLOWS. A NEW NISS COURSE

NISS is introducing a two-day "R and Spark: Tools for Data Science Workflows" course to enable statisticians to work with Big Data. The course will be offered on September 14-15, 2017 at the American Statistical Association offices in Alexandria, Va., and on September 30 - October 1, 2017, at the University of California Riverside.

"This course enables statisticians to expand their data analysis skills, tools, and workflows in a natural way to those required for Big Data," says E. James Harner, Professor Emeritus of Statistics and Adjunct Professor of Management Information Systems at West Virginia University.

Developed in the early nineties as an open-source alternative to Bell Labs' S statistical language, R is a flexible, extensible statistical computing environment, but limited to single-core execution. Spark is a relatively new distributed computing environment, which extends R, a first-class programming language to multiple processors.

Spark has increased the effectiveness and efficiency in the way Big Data is analyzed. It is used by major search engine organizations, such as Google and Yahoo, and LinkedIn and Amazon use it to match advertisements to users in smart ways.

Another advantage of Spark and R is that they are open source and available without cost. Therefore they can be included in derivative products and packages built for new and novel applications that benefit from the efficiency of Spark.

The course is useful to graduate students and data analysts who work with Big Data, and to federal employees who want to gear up for the emerging role of Big Data in government. "Big Data is coming on strong in many fields and we encourage people interested in Big Data to be a part of this R & Spark course taught by Harner, who is an expert in computational statistics and statistical machine learning and the chairman of the Interface Society," says David Banks, NISS Assistant Director.

The course covers the initial steps in the data science process:

- extracting data from source systems
- transforming data into a tidy form
- loading data into distributed file systems, distributed data warehouses, and NoSQL databases, i.e., ETL
- importing data into Spark for transformation and modeling workflows
- using supervised learning to build and evaluate models
- using unsupervised learning to structure data

NISS CO-SPONSORS UNC'S 2017 ATLANTIC CAUSAL INFERENCE CONFERENCE

NISS co-sponsored the University of North Carolina's (UNC) 2017 Atlantic Causal Inference Conference (ACIC) held on the UNC campus, on May 23-25, 2017. The ACIC brings together statisticians, biostatisticians, epidemiologists, economists, social science and policy researchers to discuss methodological issues with drawing causal inferences from experimental and non-experimental data. Other sponsors at the conference were UNC Gillings School of Global Public Health, UNC Department of Biostatistics and SAMSI.

Defining Causal Inference, Fan Li, Associate Professor of Statistical Science at Duke University and a member of the 2017 ACIC planning committee, says, "Causal inference concerns designs and methods of analyses to evaluate treatments, interventions or actions in randomized experiments or observational studies. It is also known by other names in different disciplines, for example, comparative effectiveness research in medicine and in health care policy, and program evaluation in economics."

The interface of causal inference and machine learning/high-dimensional data is an emerging "hotspot" in both causal inference and machine learning. So, "with the aim to bring together leading researchers to present this cutting-edge technology, NISS facilitated a workshop titled "Causal Inference and Machine Learning/High Dimensional Data," adds Li.

The conference was bustling with 240 participants and included a series of workshops, short courses, and poster sessions. NISS awarded three presenters with travel grants, namely Stefan Wager, assistant professor at Stanford Business School; Alex D'amour, Neyman visiting assistant professor at UC Berkeley Statistics Department; and Alessandra Mattei, associate professor at University of Florence (Italy), Statistics Department.

- Wager talked about "Approximate Residual Balancing: De-Biased Inference of Average Treatment Effects in High Dimensions"
- D'amour talked about "Overlap and Deconfounding Scores in High Dimensions"
- Mattei talked about "Selecting Subpopulations for Regression Discontinuity Designs in High Dimensional Settings"

Two short courses were also delivered by world-class experts at the conference - one course on Precision Medicine Through Optimal Treatment Regimes delivered by Marie Davidian, Butch Tsiatis and Shannon Holloway from North Carolina State University, and the other course on Matching Methods delivered by Jose Zubizarreta from the University of Pennsylvania.

The conference was well received by participants, more so, because the interests in causal inference across varied disciplines - industry and government - is rapidly growing in the changing world of "big data" that we live in today, says Li. The 2018 Causal Inference Conference will be held in Pittsburgh in May 2018. ACIC continues to provide an excellent platform to bring researchers across many disciplines to come together and advance the research in causal inference.

NISS CO-SPONSORS STATMOS WORKSHOP ON CLIMATE EXTREME

NISS co-sponsors the STATMOS (Statistical Methods for Atmospheric and Oceanic Sciences) workshop on climate extremes held in State College, Pa., on October 23-25, 2016. The objective of the workshop is twofold, the first part is to introduce graduate students as well as prospective students looking to pursue a career in the area of extreme value analysis to the techniques and challenges that are unique to studying rare events. And the second part is to provide a venue for statisticians and atmospheric scientists to share ideas and facilitate collaboration aimed at understanding rare, high impact climate and weather events.

James Rosenberger, NISS Director, who attended the conference says, "NISS aims to deliver research that impacts public policy and thus convening statisticians and climate scientists to share ideas aimed at understanding extreme weather and climate events has the potential to foster far-reaching results with clear implications for policy. This workshop addressed issues that integrate well with the NISS mission."

NISS seeks to act as a hub for academia, government, and industry. "This workshop did just that," says Rosenberger. The workshop brought together researchers from academia and government, including National Oceanic and Atmospheric Administration and Lawrence Berkeley National Laboratory.

This workshop featured 18 invited talks by statisticians and atmospheric and climate scientists from around the world, including six talks by Ph.D. students and postdocs. In addition, there was a lively poster session.

Professor Ben Shaby of Penn State University says that the workshop was more about understanding changing risks of high-impact events like massive storm surges or heat waves. The direct policy implications are about managing that risk. Supporting his statement with an example, Shaby says: "Heat waves are a serious threat to agriculture, and increasing frequency or severity of heat waves could trigger a food security crisis. To respond to this threat, we need to understand in detail the current and future characteristics of heat waves that will occur with high probability."

The workshop was attended by more than 40 registered participants and by the faculty and students from the local Penn State community.

NISS CO-SPONSORS THE 2017 USCOTS CONFERENCE IN PENNSYLVANIA

DENNIS PEARL, Director of the CAUSE (left) presented **DANNY KAPLAN** (right) with the CAUSE/USCOTS Lifetime Achievement Award in Statistics Education

The National Institute of Statistical Sciences (NISS) co-sponsored the 2017 United States Conference on Teaching Statistics (USCOTS), held between May 18th and 20th at the Penn Stater Conference Center Hotel State College, Pennsylvania. The USCOTS is the largest biennial conference that is dedicated to statistics education in North America.

"The theme of the conference "Show Me The Data" was intended to focus on issues like the importance of data in making evidence-based decisions, on the importance of adding content like data visualization and other ideas from data science into our courses, and on emphasizing the need to take a data-driven approach to statistics education research," says, Dennis Pearl, Director of the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE).

Pearl actively participated at the conference, where he presented a three-hour workshop with two collaborators on a National Science Foundation funded education project; he moderated a panel discussion on undergraduate research; facilitated two birds-of-a-feather lunch discussions; and presented two posters demonstrating activities for online learning.

In his keynote address titled "The Gap Between Statistics Education and Statistical Practice," Rob Kass of Carnegie Mellon University emphasized the need to do more to narrow the gap between statistics education and statistical practice. In his address, Kass talked about how the academic discipline in the field of statistics is striving for something much deeper than just a field of data-analytic techniques.

Echoing Kass' keynote address, Pearl says, "It is crucial to continually attempt to align what we teach in our undergraduate classrooms with the ever-changing statistical practice. Pedagogical and curricular reforms advanced at USCOTS seek to close this gap between statistical practice and what or how we teach our undergraduate statistics courses. Unfortunately, that gap is still too large with far too many courses still avoiding real data and emphasizing procedural over conceptual and contextual understandings."

Other keynote speakers at the event included Deb Nolan of the University of California, Berkeley, who described an integrated approach to teaching that incorporates computational and statistical thinking skills throughout the fuller data-analysis lifecycle, from data acquisition and cleaning to data organization and analysis to communicating results.

In another interesting keynote address titled, "Prestatistics: Acceleration and New Hope for Non-STEM Majors," Jay Lehmann of the College of San Mateo discussed the growing percentage of community colleges adopting a pre-statistics course in the curriculum which is a great potential for non-STEM students to succeed in the area of statistics.

Pearl presented the CAUSE/USCOTS lifetime achievement award to Danny Kaplan who is an advocate for bringing real big science data problems and the use of modern statistical modeling, and computational technologies into undergraduate statistics training.

"By co-sponsoring statistical conferences and workshops like USCOTS, we are making these informative and constructive events more accessible to our Affiliate members, who can support their faculty and students to attend. NISS sponsors the travel of Affiliate members through the use of the Affiliate Award Funds," says, James Rosenberger, NISS Director.

During the past year, the number of conferences and workshops available to NISS academic Affiliates was fairly small. We are eager to co-sponsor many more similar events in the future so that our Affiliate members positively benefit from it, says Rosenberger.

The conference received a good turnout of more than 450 participants who actively participated in the event. The next USCOTS will be held in May 2019 at the Penn Stater Conference Center in Pennsylvania.

NEWSLETTER HIGHLIGHTS

NISS CORPORATION MEMBER NICHOLAS HORTON RECEIVED THE AMERICAN STATISTICAL ASSOCIATION'S (ASA) FOUNDERS AWARD. FOUNDERS AWARD IS BESTOWED UPON ASA MEMBERS WITH LONGSTANDING AND DISTINGUISHED SERVICE TO THE ASSOCIATION AND ITS MEMBERSHIP. READ THE FULL STORY HERE.

MIMI KIM JOINS THE NISS BOARD! KIM IS APPOINTED TO THE NISS BOARD BY COPSS (COMMITTEE OF PRESIDENTS OF STATISTICAL SOCIETIES). SHE IS A PROFESSOR AT THE DEPARTMENT OF EPIDEMIOLOGY & POPULATION HEALTH, ALBERT EINSTEIN COLLEGE OF MEDICINE. READ DR. KIM'S FULL PROFILE HERE.

NISS CORPORATION MEMBER NICHOLAS HORTON CHAIRED THE 2017 COMMITTEE OF PRESIDENTS OF STATISTICAL SOCIETIES (COPSS) AWARD CEREMONY AND FISHER LECTURE AT JSM 2017. THE COPSS AWARD PRESENTS AWARDS ANNUALLY TO HONOR STATISTICIANS WHO HAVE MADE OUTSTANDING CONTRIBUTIONS TO THE PROFESSION. THE COMMITTEE PRESENTED FOUR AWARDS ON AUGUST 2, 2017. READ MORE ABOUT THE WINNERS HERE

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UPCOMING EVENTS

NISS

DESIGN AND ANALYSIS OF EXPERIMENTS (DAE 2017) CONFERENCE

Thursday, October 12, 2017 - 7:30am to Saturday, October 14, 2017 - 1:00pm
at UCLA, Los Angeles, California, U.S.
*NISS CO-SPONSORED
*AFFILIATE AWARD FUND ELIGIBLE

WOMEN IN STATISTICS AND DATA SCIENCE (WSDS) 2017

Thursday, October 19, 2017 - 7:30am to Saturday, October 21, 2017 - 1:50pm
at Hyatt Regency, La Jolla, California, U.S.
*NISS CO-SPONSORED
*AFFILIATE AWARD FUND ELIGIBLE
*VISIT NISS BOOTH

2018 CONFERENCE ON STATISTICAL PRACTICE (CSP)

Thursday, February 15, 2018 - 8:00am to Saturday, February 17, 2018 - 5:30pm
at Marriott Portland Downtown Waterfront, 1401 SW Naito Parkway, Portland, Oregon, U.S.
*NISS HALF-DAY SHORT COURSE

SIXTH NOGGINS 2018 WORKSHOP

Friday, April 13, 2018 - 9:00am to 5:00pm
at University of Georgia, Richard B. Russell Building Special Collections Libraries, Room 277, Athens, Georgia, U.S.
Affiliate Priority Registration
*NISS CO-SPONSORED
*AFFILIATE AWARD FUND ELIGIBLE

SYMPOSIUM ON DATA SCIENCE & STATISTICS (SDSS)

Wednesday, May 16, 2018 - 7:00am to Saturday, May 19, 2018 - 3:30pm
at Hyatt Regency Reston, 1800 Presidents Street, Reston, Virginia, U.S.
*NISS CO-SPONSORED
*AFFILIATE AWARD FUND ELIGIBLE

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RECENT EVENTS

NISS

R AND SPARK: TOOLS FOR DATA SCIENCE WORKFLOWS

Saturday, September 30, 2017 - 9:00am to Sunday, October 1, 2017 - 5:00pm
at Genomics Auditorium, University of California, 900 University Avenue, Riverside, California, U.S.
*NISS HOSTED

NISS/WSS WORKSHOP ON INFERENCE FROM NONPROBABILITY SAMPLES

Monday, September 25, 2017 - 9:00am to 5:00pm
at Bureau Labor Statistics Conference Center, 2 Massachusetts Ave NE, Washington, District of Columbia, U.S.
*AFFILIATE AWARD FUND ELIGIBLE

R AND SPARK: TOOLS FOR DATA SCIENCE WORKFLOWS

Thursday, September 14, 2017 - 9:00am to Friday, September 15, 2017 - 5:00pm
at American Statistical Association Headquarters, 732 North Washington St.Alexandria, Virginia, U.S.
*NISS HOSTED

NISS-MERCK VIRTUAL MEET-UP

Tuesday, September 12, 2017 - 11:00am to 12:00pm
at Virtual meet-up
*NISS AND MERCK HOSTED

2017 JOINT STATISTICAL MEETINGS

Saturday, July 29, 2017 - 7:30am to Thursday, August 3, 2017 - 12:20pm
at Baltimore Convention Center, One West Pratt Street, Baltimore, Maryland, U.S.
*VISIT NISS BOOTH

2017 – WNAR MEETING

Sunday, June 25, 2017 - 8:00am to Wednesday, June 28, 2017 - 1:00pm
at Eldorado Hotel and Spa, Sante Fe, New Mexico, U.S.
*VISIT NISS BOOTH

INTERNATIONAL TOTAL SURVEY ERROR WORKSHOP 2017

Monday, June 12, 2017 - 9:00am to Wednesday, June 14, 2017 - 12:00pm
at Regensburger Strasse 104, Room 168, Nürnberg, Germany, 90478

SRCOS 2017 SUMMER RESEARCH CONFERENCE

Sunday, June 4, 2017 to Wednesday, June 7, 2017
at Villas by the Sea, Jekyll Island, GA, 1175 N Beachview Drive Jekyll Island, Georgia, U.S.
*NISS CO-SPONSORED

STATISTICAL PERSPECTIVES OF UNCERTAINTY QUANTIFICATION 2017

Monday, May 29, 2017 - 8:30am to Tuesday, May 30, 2017 - 5:00pm
at Georgia Tech Hotel, Atlanta, Georgia, U.S.
*NISS CO-SPONSORED
*AFFILIATE AWARD FUND ELIGIBLE

2017 ATLANTIC CAUSAL INFERENCE CONFERENCE (ACIC)

Tuesday, May 23, 2017 to Thursday, May 25, 2017
at UNC Chapel Hill, Chapel Hill, North Carolina, U.S.
*NISS CO-SPONSORED
*AFFILIATE AWARD FUND ELIGIBLE

USCOTS 2017 | CAUSEWEB

Thursday, May 18, 2017 to Saturday, May 20, 2017
at The Penn Stater Conference Center Hotel, 215 Innovation Blvd, State College, State College, Pennsylvania, U.S.
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*AFFILIATE AWARD FUND ELIGIBLE

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