NISS

Parameters

EVENTS, EVENTS and much more!

Digging Deeper into p-value Alternatives - Nov.19

What are the Keys to a Successful Grant?

You Got Peanut Butter on my Chocolate!

Webinar Explores the Boundaries of Data Science and Statistics

New Academic Affiliates Join NISS!

Columbia University, Department of Statistics

Cornell University, Department of Statistics and Data Science

University of Texas at Austin, Department of Statistics

University of California at Los Angeles, Department of Biostatistics

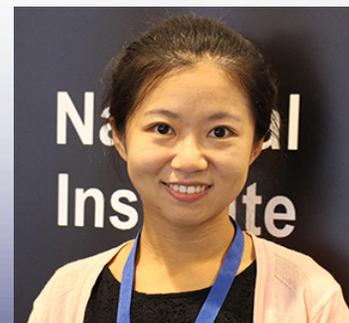University of North Carolina in Greensboro, Department of Mathematics and Statistics

R & Spark: Tools for Data Science Workflows - Nov. 25-26

A Host of Virtual Career Fairs!
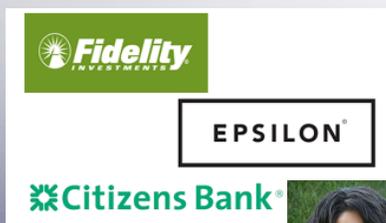
Non-Healthcare
Dec. 6

Meet NISS Research Associate - Lu Chen

DIRECTOR'S NOTES

Welcome to the Fall 2019 edition of the NISS Parameters Newsletter

This fall has been busy with a number of exciting activities that NISS makes available to our affiliates and also to the broader professional community of statisticians and data scientists. Our first virtual Career Fair had speakers from our Industry Affiliates, who provided words of advice on their personal career journeys and specific information for prospective employees to consider when they embark on their next career steps. This could be their first job after securing a bachelor's degree, a master's degree, or the Ph.D. Should someone consider transitioning from an academic to an industry position or is it better to get some industry experience before joining the academic career path? On my personal journey I worked in the medical research field after my bachelor's degree in mathematics, while earning a master's degree part time, and later went to graduate school for a Ph.D. in statistics. See the article on page 3 for highlights from this first event, which is now available for viewing by the public on the NISS website, under Events / Past Events.

Coming soon, on December 6, at we are hosting a follow-up Career Fair with speakers Victor Lo from Fidelity Investments, Daniel Tu from Citizens Financial Group, and Danny Jin from Epsilon, a data driven marketing firm, which will be moderated by Professor Esra Kurum at UC Riverside.

NISS hosted a very popular webinar on "What's in a name: Data Analytics, Machine Learning, Artificial Intelligence and What else?" Despite the sometimes-contentious issue of who owns Data Science the four speakers provided a seasoned view of the changing nature of the name of what's hot, while largely agreeing on the content of these different specialties, which overlap with many statistical procedures.

Our ongoing NISS – Merck Virtual Meet-up series has continued quarterly, with the most recent topic in September on Subgroup Analysis. The popular events typically have about 300 or more participants, and the focus is on topics of keen interest to statisticians in the pharmaceutical industry. Past events can be viewed on the NISS website under: Events / Meet-up Recordings. The next NISS – Merck Virtual Meet-up will be on January 15 on the topic: Adaptive Trials for Drug Development, discussed by three experts in the field.

We have expanded our presence in professional development for the benefit of our academic affiliates with a NISS Virtual Academic Meet-up on October 31 on the topic: Applying for a Statistics Research Grant: Essential Tips for Success! See page 4 of the Newsletter for a brief overview of this event, with excellent speakers from three different perspectives giving advice: Karen Messer, Professor and Chief of the Division of Biostatistics and Bioinformatics, UC San Diego, speaking from an NIH perspective, Dr. Yehua Li, Professor of Statistics at UC Riverside, speaking about NSF grants, and Dr. Sujit Ghosh, Professor of Statistics, NCSU, giving a broader perspective about other grant sources. This event can be viewed on the NISS website.

The NISS affiliate program strives to serve the community by co-sponsoring numerous regional activities for our affiliate members, who can participate and utilize their affiliate award funds to bring people together. NISS affiliation demonstrates a commitment to outreach with other academic institutions and across government and industry sectors. The cost of an academic affiliate membership can be partially utilized as travel expenses and registration at NISS-sponsored events for faculty and graduate student participants, who build their career network by engaging in these activities. See the list of upcoming events on Pages 8 and 9 in this Newsletter and at www.niss.org/events. To find more information about our affiliate program, please see our affiliate information page on our website or contact me.

by Jim Rosenberger
NISS, Director

ABOUT NISS

The National Institute of Statistical Sciences (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 and data sciences.

This is a first in a NISS series of Virtual Career Fairs- Exclusive events hosted by NISS for members of NISS Affiliate institutions.

NISS Affiliates gathered together online to hear from representatives of five companies whose mission is central to statistics. Each representative was asked to respond to the following questions:

1. What are the job opportunities for statisticians in your organization?
2. Describe the range of skills statisticians need to succeed in your organization?
3. What is the career path for statisticians in your organization?
4. Is your organization currently hiring statisticians?
5. What advice would you give to students based on your experience?

Here is a quick review of some of the remarks that were shared by our company representatives.

Among the many things that Tim Hesterberg, senior statistician at Google, mentioned he stipulated four main things that Google is looking for when hiring statisticians. These are statistical knowledge (being able to understand and use statistical methods), intuition when it comes to the abilty to examine a data set and being able to get a sense of what is happening, the ability to engage in computation and programming, and last, but not least, the ability to communicate well with others. His advice - get involved!

Dan Holder, an Executive Director of Biostatistics and Research Decision Sciences at Merck was the next representative. Merck is a company of about 69,000 employees based primarily in the northeast whose mission is to "discover, develop and provide innovative services and products that improve and save lives around the world." Dan highlighted problem-solving, motivation/passion, cooperation/teamwork and communication skills as what companies like Merck are looking for. Dan did remark that although it would be helpful to have some background in either biology or medicine, this is not required.

Yanling Zuo, who is a lead statistical designer of Minitab Statistical Software described a different set of employeement opportunites at a company like Minitab. There are positions that involve research

and design of statistical methods, statistical trainers that support implementation by clients, technical support personnel as well as quality assurance engineers. All of these are aimed at improving the statistical software serivces and products.

The career opportunties at SAS, shared by Fang Chen, the Director of the Advanced Statistical Methods Department at SAS were similar to those at Minitab however, there are also a wide range of opportunities in consulting with clients in many different fields of study such as risk assessment, retail, banking, fraud and many others. In addition, besides a technical track there is also a management track. His advice for prospective employees included flexibility, efficiency, the willingness to program as well as to communicate well with others on a team.

The final speaker was Steve Cohen, the Vice President of Statistical and Data Sciences at RTI International. His unit is one subset of the company that is involved in designing and implementing social science studies using a variety of technological, analytical and methodological approaches. The division is involved in using data modeling, pyschometrics, small area estimation as well as nonprobability sampling to mention a few. He also provided an overview of the type of projects that RTI is involved in and the analytics, predictive analytics or predictive modeling support they provide.

After comments from each of the representatives, the moderator opened up the floor in order to address the many questions that came in from NISS Affiliates attending. Representatives weighed in on topics such as the differing perspectives and support for data scientists vs. statisticians, the importance of the ability to program, which career area should a Ph.D. graduate persue as well as many other topics. A recording of the Virtual Career Fair session is being shared with NISS Affiliates!

If you are not an Affiliate and would like to attend these sessions like these live and be able to ask questions of the speakers, talk to the administration in your institution to Become an Affiliate today!

Check the NISS Events webpage for up to date event info!

Affiliate Members - Register for these upcoming Virtual Career Fairs!

-> NISS Virtual (non-healthcare) Industry Career Fair - December 6, 2019 --->
NISS Virtual Government/National Lab Career Fair - January, 2020
NISS Virtual Academic Career Fair - February, 2020

Moderator Esra Kurum and speakers Victor Lo - Fidelity Investment, Daniel Tu - Citizens Financial Group, and Danny Jin - Epsilon

WHAT'S IN A NAME – DATA ANALYTICS, MACHINE LEARNING, ARTIFICIAL INTELLIGENCE AND WHAT ELSE?

Webinar Explores the Boundaries of Data Science and Statistics

NISS brought together four distinguished and experienced speakers whose attention has lately been involved in discussions concerning the role of statistics in the 'new' field of data science. The title of the session was "What's in a name – data analytics, machine learning, artificial intelligence and what else?"

Dan Jeske, (University of California, Riverside) opened up the webinar as a 'call to action' based on a statement released by the ASA in 2015 calling for forums involving statisticians and non-statisticians in this discussion.

Victor Lo from Fidelity Investment started the session by providing an overview of the terms that are involved in this conversation. Early researchers such as Jeff Wu and William Cleveland were mentioned along with a chronology of terms including artificial intelligence (AI), machine learning (ML), deep learning, and operations research (OR). All of these were operationalized in a Customer Relationship Management example.

Hal Stern of the University of California, Irvine also demonstrated that this topic is not new. His reference from a 1966 paper by Tukey and Wilks showed that the role of computing and statistics in data analysis is not new. He also provided evidence of the confusion that has resulted from the various terms by displaying a variety of Venn diagrams that included all of the terms discussed thus far and more. Each had their own interpretation of course! A comic moment came in the form of Hal's recapping of an early Reese's commercial as an analogy of how computing and statistics could come together in modern data analysis. "You got some chocolate in my peanut butter! You got some peanut butter on my chocolate!" Used together, they are a good combination!

Lee Wilkinson, from H2O, brought his expertise in visualization into the conversation, especially when it comes to AI and ML. Some may feel that ML can tell you everything about your data you might want to know, however, Lee provided evidence that there are many circumstances where this is simply not the case. While visualization of big data is not a easy thing to do, but there are a number of

different methods or algorithms that can be applied that will assist in visualizing big sets of data. In particular, outliers, distributional, logical and model anomalies were reviewed to demonstrate his contention.

The final speaker was, Vincent Granville, (Data Science Central) who described some of the newer methodologies related to interrogating big data. This included natural language processing (NLP), taxonomy building and examples such as automated vision, recommendation engines, and the internet of things (IoT). He spent most of his time talking about the applications in his work in theoretical data science by working with number theory problems. Each of his examples were thoroughly reviewed.

Dan Jeske then opened the remaining half hour of the session sharing the questions that participants had posted throughout the session. While some were specifically directed at a speaker's example, others were more general in nature. "Which skills are more important in today's environment, statistical analysis or coding?" or "Do you think a degree in Data Science would be too shallow? That it would not be possible to meet all of the requirements needed?" were challenges that were posed to the speakers.

Please review the entire conversation by watching the video recording of this two hour session on the NISS website. You can also find links to the slides that were used by each of the speakers.

DIGGING DEEPER INTO P-VALUES: NISS WEBINAR FOLLOW-UP   NOV. 19

Following the very successful May 2019 webinar, "Alternatives to the Traditional p-value" NISS will take the conversations on p-values a step further by inviting three authors who published in the special *TAS* issue to share insights about their specific ideas on November 19, 2019 from 12 - 2 pm (ET).

The three authors are Jim Berger, Sander Greenland, and Robert Matthews who will share personal insights into their own alternative approaches.

The webinar will be moderated by Dan Jeske from UC Riverside and editor of *The American Statistician*.

The webinar will use Zoom and is free to the public. We invite you to register for this webinar using the registration link.

More Information - Register Today!

Webinar speakers (left to right) Jim Berger, Sander Greenland and Robert Matthews

NISS WEBINAR PROVIDES ADVICE:
WHAT ARE THE KEYS TO A SUCCESSFUL GRANT?

NISS

On October 31st, 2019 NISS Academic Affiliates committee hosted a webinar geared primarily towards faculty researchers who are in the process of or have been thinking about writing a grant. Grants provide you with the opportunity to extend your line of research, collaborate with other scientists and/or help provide you with another revenue stream to fund your efforts. But what are the keys to getting your ideas accepted? The NISS Academic Affiliates committee was very fortunate to bring together three speakers who have considerable experience as both principal investigators and grant reviewers to provide their own personal insights and advice regarding this process. (Please note: all of the speakers were speaking from their own personal perspective and not as an official spokesperson of any funding agency.)

Dr. Karen Messer, Professor and Chief of the Division of Biostatistics and Bioinformatics in the Department of Family and Preventive Medicine at UC San Diego School of Medicine was the first speaker.

As current Chair of the NIH Biostatistical Methods and Research Design (BMRD) Study Section she has been involved in the submission and review of grant applications that seek to advance statistical and mathematical techniques and technologies applicable to the experimental design and analysis of data in biomedical, behavioral, and social science research. Her remarks focused on the two different and separate reviewing processes involved in the submission of grants to the National Institute of Health (NIH). Reviews are administered by the Center for Scientific Review within NIH. Applications first are reviewed within a Study Section, where grants receive scientific review by peers within the specific field of interest, using a very formalized and structured process which results in a score. The second review takes place within an institute or center that is disease focused, and this is where the funding decisions are made, taking the score into account. Her talk was loaded with advice regarding both of these reviewing processes, the NIH in general, a host of resources as well as key elements to consider when you are ready to write your application. One of these included a suggestions to become a reviewer yourself. What better way to learn about grants than to become a reviewer!

The second speaker was Dr. Yehua Li. Dr. Li is Professor in the Department of Statistics at UC Riverside. He has been the Principal Investigator of grants from the National Science Foundation (NSF) and NIH, and was the recipient of a NSF CAREER award in 2012. He has also participated on multiple grant proposal review panels for national and international funding agencies.

Keep your eyes open for the next NISS Academic Webinar! NISS Affiliates will automatically be informed.
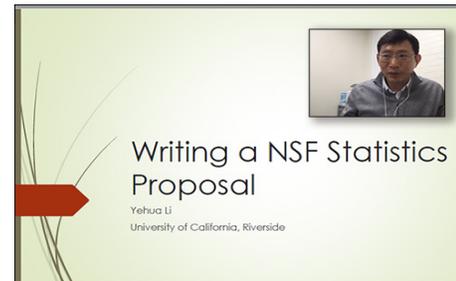
Dr. Li's remarks focused on proposals for NSF within the Division of Mathematical Sciences where there are many grant opportunities with a statistical focus. He started off by providing an overall structure, the types of research that NSF funds as well as what a NSF grant could mean to junior faculty. Dr. Li also provides loads of personal advice regarding how to navigate the NSF proposal process regarding the content and writing focus of an application, budgetary considerations as well as timelines. Final comments included don't be afraid to branch out and collaborate with others as well as the importatace of persistence!

Dr. Sujit Ghosh, is Professor of Statistics at NC State University served as the Program Director in the Division of Mathematical Sciences (DMS) at NSF in 2013-2014 and is currently the co-Chair of the American Statistical Association (ASA) Committee on Funded Research.

While the first two speakers focused on grant proposals with NIH and NSF, Dr. Ghosh focused on grant opportunities from other sources. Most importantly, he reviewed the role that the ASA plays in providing resources for statisticians interested in grant sources. In particular he described the some of the important resources on the ASA website; External Funding Sources: Federal agencies and other organizations offering funding. Individuals might also want to join the ASA Community - Funding Opportunities. In addition, he provided the following useful links within his slides:

Upcoming Deadlines at NSF-DMS: https://www.nsf.gov/funding/pgm_list.jsp?org=DMS&ord=date

All About Grants Podcasts (NIH): https://grants.nih.gov/news/virtual-learning/podcasts.htm

Funding Opportunities: Better Statistical Participation is Needed Across Collaborative Science: https://magazine.amstat.org/blog/2015/12/01/funding-opportunities/

For those of you that could not attend the webinar live, or for review purposes, a recording of the event and below as the slides from each of the speakers are found on the NISS website.

Virtual meet-ups take advantage of the latest video conferencing technologies. No travel disruptions to schedule and no finding a place and trying to figure out where to put everybody!

Meet-ups are a wonderful way to gather together a panel of speakers to examine a specific topic of interest to statisticians and researchers. NISS-Merck meet-ups have given us the opportunity to spend a lunch hour listening in and asking questions of those that are at the forefront of the latest methods and thinking on the challenge that are faced in industry.

Also, a big shout out goes out to Dan Holder from Merck for being at the forefront of organizing these events! Thank you Dan!

The latest NISS-Merck virtual meet-up took place in September, 2019 and focused on the topic of Subgroup Analysis. Ilya Lipkovich, (Lily), Rob Hemmings, (Consilium Salmonson and Hemmings) and Stephen Ruberg, (Analytix Thinking) all provided their own perspectives regarding their own experiences. The goal of the meetup was to

NISS-Merck meet-ups have taken place since 2017. Here is a chronological listing of the meetings that have taken place thus far. Weren't able to attend? No problem! Follow the links to the web pages where recordings and speaker's slides are posted.

September 12, 2017 - "Multiple Endpoints in Clinical Trials"
January 23, 2018 - "Estimands and Sensitivity Analysis in Clinical Trials"
April 25, 2018 - "Applications of Machine Learning in the Pharmaceutical Industry"
October 4, 2018 - "Real World Data and its Applications in the Pharmaceutical Industry"
January 22, 2019 - "Statistical Challenges in Immuno-Oncology"
April 1, 2019 - "Applications of Real World Data"
Septermber 10, 2019 - "Subgroup Analysis"

attempt to frame some of the important issues around the use of subgroup analysis in drug development and provide consideration from both a practitioner's and regulator's prospective. As with all NISS-Merck meet-ups, it was very well attended and the conversation was valued by all.

And, of course! There is another meet-up on the way! As always, go to the NISS webpage for the event and register so that you have a 'front row seat'! Register today!

January 15, 2020 -"Adaptive Trials for Drug Development"

Vladimir Dragalin, (Janssen) "Thoughts on ICH E20 EWG on Adaptive Clinical Trials"

QiQi Deng, (Boehringer-Ingelheim) "Two stage adaptive design in dose ranging studies and the alternatives"

Scott Berry, (Berry Consultants) "Master protocols & platform trials"

R & SPARK: TOOLS FOR DATA SCIENCE WORKFLOWS   NOV. 25-26

This Popular Short Course is Back!

R is a flexible, extensible statistical computing environment, but it is limited to single-core execution. Spark is a distributed computing environment which treats R as a first-class programming language. This course introduces data structures in R and their use in functional programming workflows relevant to data science.

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.

These R-based workflows are illustrated by using *dplyr* directly and as a frontend to SQL databases.

EVENT LOCATION

Bureau of Labor Statistics Conference and Training Center, Conference Rooms 7-8, Postal Square Building, 1st Street, NE, Washington, DC.

INSTRUCTOR

E. James Harner is Professor Emeritus of Statistics at West Virginia University (WVU). He was the Chair of the Department of Statistics for 17 years and the Director of the Cancer Center Bioinformatics Core for 15 years at WVU. Currently, he is the Chairman of the Interface Foundation of North America which has partnered with the American Statistical Association to organize the annual Symposium on Data Science and Statistics (SDSS) beginning in May, 2018. The areas of his technical and research expertise include: bioinformatics, high-dimensional modeling, high-performance computing, streaming and big data modeling and statistical machine learning. You may direct questions about this course to the Instructor E. James Harner at eharner@mail.wvu.edu.

Register Today!

NISS Assistant Director Receives Bernoulli Society New Researcher Award

Each year the Bernoulli Society identifies from its members those who are active researchers of mathematical statistics. The main goal of the New Researcher Award is to recognize innovative research by new researchers. This year, **Dr. Lingzhou Xue, Assistant Director of NISS**, was selected as one of the recipients of this award.

According to the website, "The applicants for this award were asked to submit a 3-page synopsis of their presentation, along with their CV ...The response to this award call was fabulous - 34 applications were submitted many of which were very strong applications making the selection procedure extremely challenging."

The following individuals were chosen for this award as innovative new researchers in mathematical statistics:

Po-Ling Loh, University of Wisconsin-Madison
Gongjun Xu, University of Michigan
Lingzhou Xue, Pennsylvania State University

Dr. Xue and the other awardees delivered presentations of their work at the 62nd ISI-WSC held in Kuala Lumpur, Malaysia during August 18 - 23, 2019.

Research Associate Lu Chen Gains 'Rookie of the Year' Honors!

NISS Research Associate Lu Chen along with National Agriculture Statistic Services (NASS) colleague **Irwin Anolik** entered the U.S. Department of Agriculture's AgCensus Visualization Challenge an opportunity to explore AgCensus Data and create interactive visualizations. There were seventeen submissions within the USDA from both individuals and teams from six different Mission Areas.
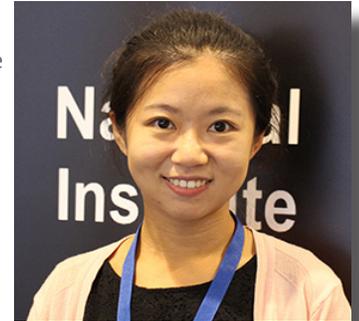
Judges from NASS and the Office of the Chief Information Officer (OCIO) scored each submission based on creativity, data exploration, beauty and design, and an overall rating.

Both will recieve a Certificate of Appreciation in USDA's first ever Internal Data Visualization Competition, signed by senior leadership.

WELCOME THE FOLLOWING NEW NISS AFFILIATES!

NISS

Columbia University, Department of Statistics

The Department has secured a position as one of the key science departments at Columbia and looks forward to making vital contributions at the forefront of statistical research as the discipline evolves in the coming decades.

Cornell University, Department of Statistics and Data Science

Cornell University's recently launched Department of Statistics and Data Science (DSDS) is a multi-college partnership that combines the traditional tools of statistics, a solid foundation in probability theory, and the skills of computer science into a single, radically collaborative department.

University of Texas at Austin, Department of Statistics

The department is an internationally recognized leader in the development of Bayesian statistical methodology, scalable methods for high-dimensional data analysis, and causal inference methodology, topics that are at the core of modern data science research.

University of California at Los Angeles, Department of Biostatistics

The department is a leader in biostatistical training for academia, government and industry. UCLA Biostatistics is at the forefront of scientific research and policy issues in Public Health, Biology and Medicine.

University of North Carolina in Greensboro, Department of Mathematics and Statistics

The Department of Mathematics and Statistics at the University of North Carolina in Greensboro offers a variety of outstanding undergraduate and graduate programs. The faculty consists of nationally and internationally recognized researchers in diverse areas of mathematics, statistics and mathematics education.

Not a NISS Affiliate?
Become A NISS Affiliate Today!

Strong Interest in Math Started Early

My parents always told me that when I grow up, I should give back to the society. In high school I was very interested in numbers and formula and math was the one subject I was very good at! As a result, at Nankai University, one of the top three math departments in China, I chose mathematics as my undergraduate major. During those four years, I developed a very solid background in mathematics, however, pure math is far from its application in real life. For this reason, I decided to continue my studies in statistics when I went to the United States. The stories hidden in numbers are so attractive to me! As a PhD student at Worcester Polytechnic Institute, in Worcester, Massachusetts studying applied statistics I knew that if I could discover and tell people the true stories hidden in numbers, I can give back something.

> "I feel very confident when I am dealing with numbers and I am eager to learn and discover new methods to tell the hidden story accurately and efficiently."

All of the modeling analysis and the uncertainty that exists around the real-world problems attracts me. As a master's degree student my research focused on financial problems. We tried to investigate quadrinomial methods to provide good approximations to the true asset option value. As a result, I realized that I needed to study more about statistics. I lacked a solid background in statistics and also the research skills that I needed. After I graduated with a master's degree in finance I went to Worcester Polytechnic Institute (WPI) for a PhD in Applied Statistics.

Doctoral Studies in Statistics

During my first two years at WPI I took the fundamental advanced statistics courses. But then a Bayesian statistics course provided me another new look into the world. The theory of Bayesian statistics is about "updating people's belief in the evidence of new data", and this is exactly how human beings think and deal with problems every day. I decided that my PhD research would be on Bayesian statistics. Specifically, my PhD thesis is in Small Area Estimation. I tried to borrow information from other resources (data), areas and subareas to provide model-based estimates of people's health status in Nepal. These methods can help to capture and predict a small area's characteristics of interest without spending a lot in survey. Findings such as these can help policy makers to make decisions in funding.

Connecting with NISS

I worked as a NISS-NASS (the National Agricultural Statistics Service) summer intern back in 2015 for three months. That was the first time I was able to get involved in so many real-world projects. At the end of 2018, NISS was seeking a PhD in small area estimation. This was my research interest and my expertise! So I applied and gave a presentation about hierarchical Bayesian logistic regression modeling for subareas at NASS and received very good feedback. After I graduated from WPI I became a NISS research associate in early 2019.

Currently, I am mainly focused on the research related to the crops county-level estimates project by using small area estimation modeling. I am working with a number of experienced statisticians at NASS. Right after I joined the NISS-NASS team in February, they had just received the field office reviews of county estimates project. The field office report provided many insights and opinions on how

to improve the project. The big challenge at that time was about incorporating inequality constraints into the model. My job was to study and investigate models with constraints and to provide reliable and reasonable model estimates at the county level. It has been wonderful to work within such a talented group of statisticians.

> "The real world is real world. It is not like it is back in school!"

I came to NASS with little background knowledge about agriculture and the County Agricultural Production Survey (CAPS) and the different sources of data used in this project. I collaborate from different aspects with a wide range of team members. Our work has been productive. We received the On-The-Spot award during July at NASS. In fact, as NASS transitioned to a system of model-based crops county estimates, I have interacted with leadership and staff across the nation to implement and improve upon production-worthy data products.

Projects as a Sources of New Learning

I have also been involved in the Data Visualization Completion at the US Department of Agriculture using Tableau. While I had no experience using Tableau before I joined NISS, during the research on county estimates project I found Tableau is a very easy-to-use tool for data visualization and presentation. I now use it to detect outliers, abnormal patterns and make comparisons between models very easily. I worked with Irwin Anolik at NASS to create a Tableau dashboard about the Census of Agriculture from 2017 in order to participate in the Visualization Challenge competition. I spent a lot to extra time in learning and investigating how to make an effective and beautiful dashboard that tells the stories of data. We won the Rookie of the Year award!

I have been involved in different data sources: survey, administrative data, remote sensing data, geographic and weather data. There are many challenges in how to combine them to provide reliable estimates. Missing data, constraints among different estimates and outliers are three big issues I am dealing with right now. For example, the county-level harvested acres estimates cannot exceed the planted acres estimates and cannot negative as well. Before fitting and developing models, I need to think more on the reality. The estimates from modeling must make sense.

> "My NISS experience has been fantastic! I can apply what I learned during my PhD to a real-world project. I keep learning new things every day and continue to hope that I can give back something based on my expertise along the way."

NISS IS HIRING!   JOIN THE NISS RESEARCH TEAM!

NISS projects develop and implement new statistical methodology for high priority federal agency problems and analyses of massive datasets.

- Appointments will be for one year with expectation of renewal.
- Positions will remain open until filled.

MULTIPLE POSTDOC / EARLY CAREER RESEARCHER
POSITIONS AT NISS

The National Institute of Statistical Sciences (NISS) is a research institute focused on bringing advances in statistics to **high priority projects with national / international impact**. Early career researchers at NISS have the opportunity to work with researcher leaders to develop innovative statistical solutions to high impact problems.

Research Challenges: Develop, implement and test innovative statistical methodologies, apply statistical thinking and technology to high-profile social, economic and survey data and conduct research to meet one or more of five objectives: 1) innovative methodology for modeling and estimation for survey data, 2) uncertainty quantification and computation, often for combining different sources of uncertainty, 3) design and analysis of simulations and experiments to validate new methodology and models, 4) new methodology for analysis and interpretation of Big Data, and 5) complex analysis of federal Big Data to answer specific substantive questions.

NEW MODELING and AI PROJECTS AT NISS!
CAREER OPPORTUNITIES with HIGH IMPACT!

The National Institute of Statistical Sciences (NISS) seeks to make multiple appointments of (postdoctoral) Research Associates for high-impact projects in two areas. The first will **develop and implement high-dimensional methodology and AI models** for data used in chief US economic indicators for the agriculture sector. Projects will integrate different data types from multiple sources to optimize estimation and uncertainty quantification. The second area includes **projects in statistics and quantitative methodology**: addressing technical challenges in the development and testing of innovative statistical methodologies for advancing research in analysis of high dimensional data and images, including for example process data (key strokes/ time stamps) from assessments.   Research Associates will also create templates and exemplars for analyzing and reporting these analyses.

Spread the Word - Share with Colleagues!
APPLY TODAY!

What Current & Recent Postdocs have to say about working at NISS!

"My experience with NISS has provided me with way more opportunities than I expected. There is so much more that can be accomplished both by me personally as well as the potential for finding solutions for the projects that I am involved in."

Luca Sartore, NISS Research Associate

"I appreciate all the opportunities that NISS has given me to learn and to grow as a researcher as well as allowing me to apply my knowledge and skills to study interesting educational phenomena."

Ya Mo, NISS Research Associate

"There is a wealth of research on the factors impacting survey response. However, much is still to be known and I hope to contribute scientifically to this body of knowledge."

Joe Rodhouse, Former NISS Research Associate

"My experience at NISS has been filled with great opportunities for which I am truly grateful."

Andreea Erciulescu, Former NISS Research Associate

AFFILIATES!

SEND YOUR JOB ANNOUNCEMENTS TO NISS!

A link to the Job Announcements page can be found at the bottom of of every page of the NISS website! Share your announcement with other organizations associated with NISS or other visitors to our website.

https://www.niss.org/careers

NOVEMBER

Statistics and the Life Sciences: Creating a Healthier World

Event Date: November 15, 2019
Event Location: Boston, Massachusetts,

Statistics and the Life Sciences: Creating a Healthier World is a one-day conference as part of the Boston University Dean's Symposia series. It will take place November 15, 2019, at Boston University School of Public Health. (read more)

NextGen: Data Science Day

Event Date: November 16th, 2019
Event Location: Waltham, Massachusetts

Keynote Speakers MikeTamir - Chief ML Scientist and Head of Machine Learning for SIG, UC Berkeley Data Science Faculty, and Director of Phronesis ML Labs, and Francesca Dominici - Professor of Biostatistics at the Harvard T.H. Chan School of Public Health and Co-Director of the Harvard Data Science... (read more)

Digging Deeper Into p-values: NISS Webinar Follow-up with Three Authors

Event Date: November 19, 2019 - 12-2:00 pm (ET)
Event Location: Online Webinar

In 2017 the ASA published the statement, "The ASA's Statement on p-Values: Context, Process, and Purpose". Since that time, many statisticians have been thinking and writing about alternatives to the traditional p-value. This work culminated in the publication of a special edition of the American... (read more)

R & Spark: Tools for Data Science Workflows

Event Date: Monday and Tuesday, November 25-26, 2019, 9-4:30 pm
Event Location: Washington, District of Columbia

R is a flexible, extensible statistical computing environment, but it is limited to single-core execution. Spark is a distributed computing environment which treats R as a first-class programming language. This course introduces data structures in R and their use in functional programming... (read more)

DECEMBER

NISS Virtual (Non-Healthcare) Industry Career Fair!

Event Date: December 6, 2019 12:00 - 1:00 EDT
Event Location: Online Webinar for NISS Affiliates

In the March issue of the IMS Bulletin in 2014, Terry Speed advised his readers to *Give Industry a Chance*. Terry articulated the benefits of working in industry and suggested activities that could help graduate students explore career opportunities outside of academia. National Institute of... (read more)

JANUARY 2020

13th International Conference on Health Policy Statistics

Event Date: January 6-8, 2020
Event Location: San Diego, California

The theme for the 13th International Conference on Health Policy Statistics is Leveraging Data to Shape the Future. Overview The multidisciplinary nature of health services, policy, and outcomes research and the significant reliance on generating evidence in this field have created a major need for... (read more)

NISS-Merck Meet-Up on Adaptive Trials for Drug Development

Event Date: January 15, 2020 11-12:30 pm EDT
Event Location: Virtual Meet-up

The National Institute of Statistical Science (NISS) and Merck are sponsoring a Virtual Meet-Up on Adaptive Trials for Drug Development. Adaptive clinical trials use accruing data to make changes in the ongoing trial. Changes based on early information can increase efficiency, by limiting resources... (read more)

NISS Virtual Government/National Lab Career Fair

Event Date: January, 2020
Event Location: Online Webinar for NISS Affiliates

Details coming soon! See the NISS website for up to date event information!

FEBRUARY

NISS Virtual Academic Career Fair

Event Date: February, 2020
Event Location: Online Webinar for NISS Affiliates

Details coming soon! See the NISS website for up to date event information!

MARCH

7th NOGGINS Workshop

Event Date: March 27, 2020
Event Location: Athens, Georgia

The functional Magnetic Resonance Imaging (fMRI) data analysis group of the University of Georgia Department of Statistics will host the seventh NOGGINS (Network of Greater Georgia Institutions for Neuroimaging and Statistics) workshop on Friday, March 27, 2020. The workshop provides a forum for... (read more)

Check the NISS Events webpage for up to date event info!

APRIL

13th Annual Conference on Statistical Issues in Clinical Trials: Cluster Randomized Clinical Trials (CRTs): Challenges and Opportunities

Event Date: April, 2020
Event Location: Philadelphia, Pennsylvania

This conference is focused on "Cluster Randomized Clinical Trials (CRTs): Challenges and Opportunities". More details coming soon!

72nd Clemson University / University of Georgia Joint Statistics Colloquium

Event Date: April 16, 2020

Since 1973, the Department of Mathematical Sciences (now known as the School of Mathematical and Statistical Sciences) at Clemson University and the Department of Statistics at The University of Georgia (UGA) have worked together to organize the UGA/Clemson Joint Seminar Series. The first joint... (read more)

The 2020 Bradley Lecture

Event Date: Friday, April 24, 2020 - 3:30pm
Event Location: Athens, Georgia

To recognize the professional accomplishments of the late Professor Ralph Bradley, the Department of Statistics at the University of Georgia has been organizing an annual "Bradley Lecture" since 1993. The first Bradley Lecture held in 1993 featured Professors C. R. Rao and Ralph Bradley as speakers... (read more)

MAY

The 8th Workshop on Biostatistics and Bioinformatics

Event Date: May 8-10, 2020
Event Location: Atlanta, Georgia

Biostatistics and Bioinformatics have been playing a key and important role in statistics and other scientific research fields in recent years. The goal of this workshop is to stimulate research and to foster the interaction of researchers in Biostatistics & Bioinformatics research areas. The... (read more)

The Statistical Methods in Imaging Conference 2020

Event Date: May 18-21, 2020
Event Location: Atlanta, Georgia

The Statistical Methods in Imaging (SMI) conference is the annual meeting of the American Statistical Association (ASA) Statistics in Imaging Section. The SMI 2020 conference invites submissions of proposals for invited oral sessions and collaborative case study sessions. Invited Oral Sessions 3... (read more)

JUNE

2020 Quality and Productivity Research Conference

Event Date: June 8 - June 11, 2020
Event Location: Tallahassee, Florida,

Researchers from academia, industry, and government are invited to participate, exchange ideas, organize sessions, and present their research related to the spirit of Quality and Productivity Research Conference (QPRC) This will be the 37th Annual Quality and Productivity Research Conference.... (read more)

Check the NISS Events webpage for up to date event info!

NISS