NESS

New England Statistical Society (NESS)

To promote the growth and expansion of statistical science in New England and beyond.

http://nestat.org

NESS Newsletter

December 2019

In Brief

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Announcement: The 34th New England Statistics Symposium

The Department of Computer Science and Statistics at the University of Rhode Island (URI) is proud to host the 34th New England Statistics Symposium in May 21–23, 2020. Please contact the Committee Chair Dr. Gavino Puggioni for inquiries, or check the official website at https://symposium.nestat.org for more details about the event.

Announcement: Call for nomination of Chernoff Excellence in Statistics Award.

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At A Glance: NESS Activities in 2019

- The 33rd New England Statistics Symposium
- The Inaugural Chernoff Excellence in Statistics Award
- New England Rare Disease Statistics (NERDS) Workshop
- The 2nd NextGen Data Science Day
- Education & Outreach
- Leadership & 2019 Election

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With the support from all our members and friends, the New England Statistical Society (NESS) has made significant progress on various fronts in 2019. We are glad to report to you the major activities and updates of NESS in 2019.

The 33rd New England Statistics Symposium

The Department of Statistics of the University of Connecticut (UConn) proudly hosted the first remodeled, 3-day New England Statistics Symposium since the establishment of the New England Statistical Society, on May 15–17, 2019. The theme was "Statistical Data Science in Action." It took place in Hilton Hartford because Nathan Hale Inn was being renovated at the time. The symposium featured short-courses, plenary talks, invited sessions, career development panel discussions, student paper competition, student poster competition, Stat-a-thon, the inaugural Chernoff Lecture, and a special session Honoring UConn Professor Rick Vitale. Close to 500 participants attended the symposium.

Amanda Stent of Bloomberg giving a keynote speech.

Four short-courses were taught on the first day. Two were full-day: "Intermediate Machine Learning: Key Concepts and Techniques" by Dr. David Rosenberg (Bloomberg); and "Big Data Analytics and Deep Learning" by Dr. Ming Li (Amazon) and Dr. Hui Lin (Netlify). The other two were half-day: "Practical Visualization for Data Scientists" by Dr. Xiaoyue Cheng (University of Nebraska at Omaha); and "Introduction to Multilevel Modeling" by Dr. Min Zhu (SAS). A mixer followed the short-courses, sponsored by the Munich Re Group–The Hartford Steam Boiler Inspection and Insurance Co.

Thursday, May 16, started with a welcome remark from the 2019 President of the New England Statistics Society and Head of UConn statistics department, Prof. Ming-Hui Chen, and two keynote presentations. The first keynote talk was "Big Data, Google and Disease Detection: A Statistical Adventure" by Prof. Sam Kou of Harvard University. The second keynote talk was "Machine Learning for Structured and Unstructured Data in Finance", presented jointly by Drs. David Rosenberg and Amanda Stent of Bloomberg. A total of 63 invited sessions covered a wide spectrum of areas of Statistical Data Science in Action. In addition to showcases of Statistical Data Science in Action in many fronts and fields, we also had sessions on education and career development on topics including career opportunities, effective communications,

Keynote speech by Dr. Simon Kou of Harvard.

teaching data science, and leadership.

The poster session was held in the late afternoon Thursday, May 16. It had 48 posters, mostly presented by students competing for the Liberty Mutual Student Poster Awards. Dr. Anthony D'Amico of Dana-Farber Cancer Institute and Brigham & Women's Hospital delivered the banquet talk, "Patient Outcomes in Prostate Cancer by Partnering Statistics and Medicine." The founding president of the New England Statistical Society, Prof. Xiao-Li Meng of Harvard University, made toasts which were interesting and thought-provoking as usual.

From left to right: Dr. Ming-Hui Chen giving opening remark, Dr. Anthony D'Amico delivering banquet talk, and Dr. Xiao-Li Meng making a toast.

A special session in the afternoon of Friday, May 17, entitled "Probability, Statistics, and Geometry: A Special Session Honoring Rick Vitale," celebrated Rick's academic achievements and his 75th birthday. David Pollard (Yale University) was the chair, and talks relating to Rick's work were given by Andrew Barron (Yale University), "Gaussian Complexity, Metric Entropy, and Risk of Deep Nets"; David Donoho (Stanford University), "The Statistical Significance of Perfect Linear Separation"; and Subhashis Ghoshal (North Carolina State University), "Coverage of Credible Intervals for Monotone Regression." Rick concluded the session with thanks to the organizers and with a suggestion to younger colleagues that they always find time for research problems that genuinely intrigue them. The session was recorded and can be viewed online (link).

At the special session celebrating Dr. Rick Vitale's academic achievements.

The conference concluded on Friday afternoon with a new addition to NESS, the Chernoff Award Ceremony & the Chernoff's Lecture. More details can be found in the later session of the newsletter. The closing award ceremony also featured three student awards. The IBM Student Paper Awards, continuously sponsored the IBM Watson Research Center, went to Moming Li, Yan Li, Xiaokang Liu, and Wei Shi. Moming Li was from George Mason University, and the other three awardees were from UConn Statistics. The winning papers were as follows: Moming Li, Guoqing Diao, and Jing Qin, "On Symmetric Semiparametric Two-sample Problem"; Yan Li, Kun Chen, Jun Yan and Xuebin Zhang, "Weight Matrix Construction in Fingerprinting to Improve Detection of Global Temperature Signals in Historical Climate"; Xiaokang Liu, Shujie Ma and Kun Chen, "Multivariate Functional Regression via Nested Reduced-Rank Regularization"; and Wei Shi, Ming-Hui Chen, Lynn Kuo and Paul Lewis, "New Bayesian Measures for Information and Data Compatibility". The Liberty Mutual Student Poster Awards went to Shajratul Alam, University of Rhode Island; Paul Mclaughlin, University of Connecticut; Jiahui Yu, University of Massachusetts Amherst; and Xiaojing Zhu, Boston University.

A companion event of the 2019 NESS was the Travelers Stat-a-thon sponsored by our longtime industry partner Travelers. We had two themes, Connecticut Housing in partnership with Connecticut Open Data, and Customer Retention in partnership with Travelers. The winners of the Connecticut Housing theme were: 1st Place: Team Bentley (Madhurya Baruah, Pooja Sudheendra, Wenqi Wang, and Yueyi Wang, all from Bentley University); 2nd Place: LLJW (Peng Jin, New York University; Myeonggyun Lee, New York University; Chihua Li, Columbia University; Bin Wang, New York University); 3rd Place: KAE-Group (Anhar Aloufi, Daniel Kpormegbey, and Katherine Zavez, all from University of Connecticut). An honorable mention was given to two high school students, Richard Dong and Christa Malan of Easton Country Day School. The winners of the Customer Retention theme were: 1st Place: Rule of Three (Ariel Chernofsky, Boston University; Nina Orwitz, New York University; Serena Zhan, Columbia University); 2nd Place: Q.E.D. (Yizhou Mi, Shengjun Wang, Jiaxi Yang, and Weibo Zhang, all from Columbia University).

The 2019 NESS Organizing Committee consisted of Haim Bar, HaiYing Wang, and Jun Yan (chair). The Stat-a-thon committee was chaired by HaiYing Wang. The Student Paper Committee was co-chaired by Yuping Zhang of UConn Statistics and Beatriz (Stefa) Ethcegaray of IBM Watson Research Center. The Student Poster Committee was co-chaired by Valarie Bazaaro of Wesleyan University, and Zhenkui Zhang of Liberty Mutual. The Fundraising Committee was chaired by Dipak Dey. The Program Committee was co-chaired by Kun Chen of UConn, Gavino Puggioni of University of Rhode Island, and Jun Yan of UConn. The committees consists of many people from many institutions. The success of the conference depended on the collective efforts of all.

We thank our sponsors, Department of Statistics, University of Connecticut, ASA Connecticut Chapter, IBM Thomas J. Watson Research Center, Liberty Mutual Insurance, Munich Re Group–The Hartford Steam Boiler Inspection and Insurance Co., Pfizer, Taylor & Francis, and Travelers Insurance. The student volunteers from UConn, led by Jieying Jiao, played a critical role in supporting the conference in all aspects from staffing the registration desk to handling the VC equipment. Student webmaster


Yan Li developed and maintained the webpage, the registration system, and the abstract submission system of the conference. UConn department staff Tracy Burke and Anthony Luis offered their indispensable support.

(Contributed by Haim Bar, HaiYing Wang and Jun Yan; Edited by Kun Chen)

Chernoff Excellence in Statistics Award

The Inaugural Award to Dr. Shaw-Hwa Lo

The Chernoff Excellence in Statistics Awards is the most prestigious award bestowed by the Society to an individual who, in the tradition of Herman Chernoff's work, has made exceptional contributions to the theory, methodology, or novel applications to statistics and/or data science. The inaugural recipient of the Chernoff Award was Dr. Shaw-Hwa Lo (website), Professor of Statistics at Columbia University. The awardee's identity remained a secret until the presentation of the award, which was presented by Dr. Joe Cappelleri, President-Elect of the New England Statistical Society and Chair of the Chernoff Award Committee. Prof. Lo delivered the first Chernoff Lecture in NESS history, "Interaction-based Variable Selection and Big Data Prediction."

Congratulations to Dr. Shaw-Hwa Lo!


At the Chernoff Award Ceremony.

Call for Nominations

The Society has created the Chernoff Excellence in Statistics Award to honor Herman Chernoff's outstanding, long-term contributions to the field of statistics. These contributions include work on large sample theory, experimental design, sequential analysis, methods of presenting statistical data in visual form, and statistical decision making. The Chernoff Excellence in Statistics Award is the most prestigious award bestowed by NESS, given to an individual who, in the tradition of Herman Chernoff's work, has made exceptional contributions to theory, methodology, or novel applications to statistics or data science.

The award will be given to one recipient every year at the New England Statistics Symposium, with travel expenses covered plus a minimum of $500 honorarium. The award recipient will be asked to deliver the Chernoff Lecture at the symposium. Nominations for the award are to be submitted by **January 15, 2020**.

The Award Committee consists of Drs. Joseph C. Cappelleri (Pfizer Inc, NESS President-Elect), James MacDougall (statistical consultant, NESS VP for Strategies & Development), Mark Vangel (Massachusetts General Hospital), Bushi Wang (Boehringer-Ingelheim Inc), and Junxian Geng (Boehringer-Ingelheim Inc.).

For more details on this award and for making nominations and donations, please visit https://nestat.org/hcaward/.

New England Rare Disease Statistics (NERDS) Workshop

The last 10-15 years have seen great emergence of drug development efforts in the rare disease space. Contributing factors include increased public awareness, encouraging drug regulation changes, scientific advancement in cellular /molecular biology and genetics, development of innovative trial designs, large influx of capital investment, availability of scientific talent through decades of cultivation, etc. As a result, a great number of regulators, academicians, and industry statisticians now work to bring these orphan drugs to patients, facing unique technical issues and challenges. However, at least in the US, there is no statistical conference dedicated to such unique issues and challenges. Given the large unmet need, NESS (Society) proposes a unique conference, New England Rare Disease Statistics (NERDS) Workshop, so that statisticians across the entire rare disease drug development spectrum have a common "home" to exchange ideas and share experiences, and also to network.

At the 2019 NERDS workshop.

The 2019 workshop was successfully held on October 11, 2019, at Seaport Hotel in Boston, Massachusetts. The workshop was sponsored by twelve companies and non-profit organizations and was attended by more than 260 participants from industry, academia and government agencies.

The steering committee consisted of Dr. Ouhong Wang, VP & Head of Biostatistics at Vertex, and Dr. Ming-Hui Chen, the current President of NESS. The Organizing Committee was co-chaired by Dr. Yang Song at Vertex and Dr. Sammi Tang at Servier.

NERDS Workshop aims to be a one-day workshop with detailed presentations and discussions. Speakers from industry, academia, and government are invited. Topics will cover technical issues, regulation interpretation, industry trends, and case studies of both success and failure stories.

Please check the workshop website https://nerds.nestat.org/ for more details.

NextGen Data Science Day

On November 16, 2019, NESS NextGen committee hosted the second annual Data Science Day (DSD) at Bentley University in Waltham Massachusetts (https://nestat.org/nextgen/dsd2019/). A mission of NextGen is to support the next generation of statisticians and data scientists. Towards this goal, the conference brought together a group of eminent data science practitioners, influencers, and academic leaders to interact with those new to the field of statistics and data science. Topics of discussions included the current state and future directions of statistics and data analytics across broad and diverse markets.

The event had over 200 registrations with 133 student registrants representing 19 different schools. The event was sponsored by 10 organizations including MassMutual, the Hartford Steam Boiler Inspection and Insurance Company, Pfizer, Liberty Mutual, Boehringer Ingelheim, eBay, the National Institute of Statistical Sciences, the American Statistical Association, Bentley University, and the Lotus Group. Seven sponsors had booths setup throughout the event to provide opportunities for attendees to learn more about their organization and discuss possible career opportunities.

The event featured two keynote speakers, Dr. Mike Tamir and Dr. Francesca Dominici. Dr. Mike Tamir is the Chief Machine Learning Scientist and Head of Machine Learning for SIG, a UC Berkeley Data Science faculty, and the Director of Phronesis ML Labs. Dr. Francesca Dominici is the Clarence James Gamble Professor of Biostatistics, Population and Data Science at the Harvard T.H. Chan School of Public Health and the Co-Director of the Harvard Data Science Initiative. Dr. Tamir discussed how we can evaluate Fake News using In-Context Natural Language Processing Deep Learning. Dr. Dominici presented her work using neural networks with air-monitoring and satellite-based based data to study the effect of air pollution and climate change on the environment and public health. Between the keynote sessions there were several break-out sessions including panels on Business Analytics in Practice, Challenges in Data Science, and Careers in Data Science, as well as a workshop on the basics of Data Visualizations with Tableau.

The event closed with a networking session and poster competition. Three posters were awarded prizes based on scoring by judges. In second place there was a tie between "Viral Diseases and Existence of Vaccines" presented by Lisa Wang of Bentley University and "Connecticut Real Estate Pricing Analysis using Advanced Analytics" presented by Eve Wang, Pooja Sudheendra, and Wenqi Wang, all from Bentley University. The winner of the poster competition was Cassandra Overney from Olin College of Engineering with the poster "The Relationship between Public Transit and Bike sharing Ridership in Boston".

At the 2019 NextGen Data Science Day

The NextGen Committee is led by Dr. Abidemi K. Adeniji, and the list of current committee members can be found at https://nestat.org/nextgen/about/. Special thanks to Dr. Gregory Vaughan at Bentley University, who led the local organization of this year's DSD event.

If you are interested in hosting a future DSD event, please contact Dr. Abidemi K. Adeniji at abidemi.adeniji@gmail.com.

Education & Outreach

NESS Colloquium Series

We have established the NESS Colloquium Series that started with three exceptional talks in 2018 given by Yann LeCun from Facebook, Michael Jordan from the University fo California at Berkeley and Renee Moore from Emory. In 2019, there were two talks, Dr. Donald Berry delivered his talk at UConn in April, and Dr. David Dunson dilivered his talk at Boston University in November (https://nestat.org/nesscolloquium/).

Dr. Donald Berry's talk was titled "The Bayesian Revolution in Medical Research". Randomization was introduced into clinical trials by Bradford Hill in the 1940s. The RCT was revolutionary. It changed the stuff of medicine from case studies and expert opinion into a real science. The RCT became the gold standard. It was so revered that nobody wanted to change it or let others change it. As a consequence the RCT has remained pretty much the same over the last 80 years. Until now. Bayesians have always thought they knew better. But only recently have Bayesians made inroads into clinical trial design, taking the RCT to new levels. Dr. Berry explained why and how this happened. He gave examples of clinical trials in the new millennium. The talk focused on adaptive basket trials and adaptive platform trials because they seem to be the niche most clearly having a role for the Bayesian approach. Both belie the old saw, "Keep it simple, stupid." In medicine at least, KISS will come to mean, "Keep it simple and stupid."

Dr. David Dunson's talk was titled "Learning & Exploiting Low-dimensional Structure In High-Dimensional Data." This talk focused on the problem of learning low-dimensional geometric structure in high-dimensional data. The lower-dimensional subspace is allowed to be non-linear. There are a variety of algorithms available for "manifold learning" and non-linear dimensionality reduction, mostly relying on locally linear approximations and not providing a likelihood-based approach for inferences. A new class of simple geometric dictionaries for characterizing the subspace was proposed, along with a simple optimization algorithm and a model-based approach to inference. Special thanks to Dr. Daniel Sussman and Dr. Eric Kolaczyk at Boston University for their effort to make this talk happen.

Data Science & Statistics Career Talks in High Schools

In November 2018, Nathan Lally (Hartford Steam Boiler, CT) gave a Data Science & Statistics Career talk at New Britain High School. He spoke to a UConn Early College Experience (ECE, see https://ece.uconn.edu/) Statistics class on the following topics: the role of statistics in the scientific discovery process, examples of data science and machine learning around us, typical responsibilities of an industry data scientist or statistician (data cleaning and manipulation, model development, model deployment and application development, reporting results to senior managers), and educational pathways towards careers in data science and statistics. Nathan gave a live tech demo of an auto insurance pricing application.

If you are a high school teacher or student and would like to request talks in your school, please email the VP for Education, Nalini Ravishanker (nalini.ravishanker@uconn.edu).

NESS Short Courses for Business and Industry

NESS is pleased to announce the successful launching of NESS Short Courses for Business and Industry with three short courses that were given in 2018-2019. Details follow.

- In October 2018 and June 2019, short courses on time series analysis were given at the Hartford Steam Boiler, Hartford, CT. The courses titled, An Introduction to Time Series Analysis and Advanced Topics in Time Series Analysis were given by Nalini Ravishanker, University of Connecticut, and Jian Zou, Worcester Polytechnic Institute.
- In November 2018, a short course on Survival Analysis was given at Pratt & Whitney, East Hartford, CT by Ming-Hui Chen and Jun Yan, University of Connecticut, and Greg Vaughan, Bentley College.

Institutions that would like to hold NESS Short Courses are invited to contact the VP for Education, Nalini Ravishanker (nalini.ravishanker@uconn.edu) for details. NESS members are also invited to discuss any short courses they may be willing to provide.

Upcoming NESS Data Science Short Course Sequence

Plans are under way to hold a sequence of NESS Short Courses in Data Science starting in early 2020 at a central location in New England. Please stay tuned for further details on the NESS website.

Leadership & Election

As of June 1, 2019, Dr. Joseph C. Cappelleri has become the President Elect. Dr. Jessi Cisewski-Kehe stepped down from the position of VP for NextGen; under her leadership, the NextGen group and their activities have really helped the society to build a brand. Dr. Abidemi Adeniji has been appointed as the new NextGen VP with a two-year term.

The 2019 NESS Election of Council Members happended in April before the symposium.

- Council Members for 2019–2021:
  - Dr. Dipak Dey
  - Dr. Michael Kane
  - Dr. Davit Khachatryan
  - Mr. Nathan Lally
  - Dr. Balgobin Nandram
  - Dr. Rui (Sammi) Tang
  - Dr. Naitee Ting
  - Ms. Kathy Ziff

Congratulations!

We would also like to take this opportunity to thank two past council members for their great service to NESS and to statistical and scientific communities. Dr. Michael Lavine (2017–2019) and Dr. Chris Park (2017–2019), thank you!

The profiles of NESS Council members can be found at https://nestat.org/about/council/.

NESS Membership

NESS has decided to offer 50% discount for K-12 educators to join NESS. The current membership fee structure is as follows:

- Student Membership is free.
- Regular membership: $30 per year.
- Life membership: $600.
- K-12 educator enjoys 50% discounted on regular membership ($15 per year) and life membership ($300).
- Joint membership with Institute of Mathematical Statistics (IMS): $109 per year.

To become a NESS member, please register through our website at https://nestat.org/php/member/#signup or mail in the attached registration form.

To make a donation, please visit https://nestat.org/donation/. Your donation will help to promote the growth and expansion of statistical science in the New England area and beyond.

We sincerely invite you to join us. Without the support from our devoted members, the establishment and the rapid growth of our young society would not have been possible.

Call for Contribution to the Newsletter

Members are invited to submit contributions to the NESS Newsletter which will be published subject to the approval of the editor. Contributions can be of any form relevant to the interests of the society. Please contact Kun Chen at kun.chen@uconn.edu.

NESS | New England Statistical Society

NEW ENGLAND STATISTICS SYMPOSIUM *SINCE 1987* & NEW ENGLAND STATISTICAL SOCIETY *SINCE 2017*

Membership Registration Form	
Last Name:	
First Name:	
Middle Name:	
Membership Type: Student ☐ Regular ☐ Life ☐ NESS/IMS ☐ K-12 Educator ☐ If Student Members, Expected Graduation Year:	
Email Address:	
Phone Number:	
Employer:	
Address Line 1:	
Address Line 2:	
County/City:	
State/Province:	
Zip Code:	
Country:	
Signature & Date	

- *Student Membership is free*.
- *Regular membership: $30 per year*.
- *Life membership: $600.*
- *K-12 educator enjoys 50% discounted on regular membership ($15 per year) and life membership ($300)*.
- *Joint membership with Institute of Mathematical Statistics (IMS)* is $109 per year.

Please send the form and a check to:

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