

Conference Program (DRAFT)

AISC 2018: October 5–7, 2018; UNC Greensboro

Please Note: At UNCG Campus, shuttles will always drop off and pick up from Sterling Street between Elliott University Center (EUC: conference venue) and Walker Parking Deck.

October 4, 2018, Thursday

5:30 – 7:30 pm Registration Desk, Azalea Room at the conference hotel,
Holiday Inn, Gate City Blvd

October 5, 2018, Friday

8:00 – 8:45 Shuttles from Holiday Inn to UNCG
Departures from Holiday Inn: 8:00 am, 8:00 am, 8:15 am, 8:30 am, 8:45 am
Please do not wait for the last shuttle. You may remain stranded and may
have to take an Uber.

7:30 – Registration Desk, Refreshments, EUC Auditorium Lobby

9:00 – 9:30 Inaugural Remarks – EUC Auditorium

Sat Gupta – Conference Chair
R. Shivaji – Head, Mathematics and Statistics, UNCG
Kelly Burke, Vice Provost & Dean Graduate School
Elizabeth Mannshardt, NC State University & NC-ASA President
John Kiss – Dean College of Arts and Sciences, UNCG

9:30 – 10:10 October 5 – Plenary Session 1 – EUC Auditorium
Chair: David Banks – Duke University & SAMSI
Barry Nussbaum – ASA President (2017)
It's Not What We Said, It's Not What They Heard, It's What They Say They Heard

10:10 – 10:30 Coffee Break

10:30 – 12:30 October 5 – Parallel Session 1A – Sharpe Room EUC
Statistical Distributions with Applications in Economics and Health Sciences
Organizer & Chair: Indranil Ghosh – UNC Wilmington

George Yanev – The University of Texas Rio Grande Valley
*Borel-Tanner Distribution and Bayes Estimators for the Basic Reproduction Number of
an Epidemic*

Swati Deb Roy – The University of South Carolina Beaufort
Quantitative Modeling Applied to Childhood Obesity

Rachel M. Carroll – UNC Wilmington
*A Bayesian Approach to Weighted Quantile Sums with Extension for Time to Event
Data*

Dhanamalee K. Bandara – UNC Wilmington
A Neighborhood Hypothesis Test for Functional Data

- 10:30 – 12:30** **October 5 – Parallel Session 1B – Dail Room EUC**
Sampling Methods in High-Dimensional Spaces
Organizer & Chair: Cheng Cheng – Duke University & SAMSI
Matthias Sachs – Duke University & SAMSI
Efficient Numerical Algorithms for the Generalized Langevin Equation
Cheng Cheng – Duke University & SAMSI
Stable Phaseless Sampling and Reconstruction of Real-valued FRI Signals
Pulong Ma – SAMSI & Duke University
A Fused Gaussian Process Model for Very Large Spatial Data
Qiuyi Wu – Rochester Institute of Technology
Machine Learning for Music Mining with LDA Model
- 10:30 – 12:30** **October 5 – Parallel Session 1C – Claxton Room EUC**
Nonparametric Methods
Organizer & Chair: Scott Richter – UNC Greensboro
Scott J Richter – UNC Greensboro
Simultaneous Confidence Intervals for Comparing Scale Parameters using Deviances
Melinda McCann – Oklahoma State University
An Efficient Multiplicity Adjustment for Large Scale Chi-Square Endpoints
Sayed Mostafa – North Carolina A&T State University
Finite Population Model-Assisted Estimation using Combined Parametric and Nonparametric Regression Smoothers
**Mubbasher Munir – University of Management and Technology
Lahore, Pakistan**
The Negative Impact of Outliers in Linear Regression Model; Possible Solutions Using Robust Regression
- 10:30 – 12:30** **October 5 – Parallel Session 1D – Alexander Room EUC**
Bayesian Nonparametric Methods and Applications
Organizer & Chair: Andres F. Barrientos – Duke University
Shaobo Han – Duke University
Tensor Decomposition for Multiple Spatial Passing Networks
Olanrewaju Akande – Duke University
Simultaneous Edit and Imputation For Household Data With Structural Zeros
Andee Kaplan – Duke University
Counting Casualties in The Syrian Conflict with Bayesian Record Linkage
Andres F. Barrientos – Duke University
A Bayesian Goodness-Of-Fit Test for Regression
- 10:30 – 12:30** **October 5 – Parallel Session 1E – Kirkland Room EUC**
Sampling Methods
Organizer: Geeta Kalucha – PGDAV College, University of Delhi
Chair: Hina Khan – Government College University, Lahore, Pakistan
G N Singh – IIT (ISM) Dhanbad, India
Improved Estimation Procedures of Population Parameter for Sensitive Characteristic using Randomized Response Technique
Sat Gupta – UNC Greensboro

Randomized Response Techniques for Estimation of Small Area Total

Geeta Kalucha – PGDAV College, University of Delhi
Ratio Estimation of the Mean under RRT Models

**Zaheen Khan – Federal Urdu University of Arts, Science and Technology
Islamabad, Pakistan**
An Optimal Systematic Sampling Scheme

12:30 – 2:00

Lunch at Moran Commons Dining Center

2:10 – 3:30

October 5 – Plenary Session 2 – EUC Auditorium
Chair: John Stufken – Arizona State University

David Banks – Duke University & SAMSI
Statistical Issues with Agent-Based Models

Mahlet Tadesse – Georgetown University
Variable Selection in Mixture Models: Uncovering Cluster Structure and Relevant Features

3:30 – 3:50

Coffee Break

3:50 – 5:50

October 5 – Parallel Session 2A – Sharpe Room EUC
Lifetime Data Analysis
Organizer & Chair: Suvra Pal – University of Texas at Arlington

Indranil Ghosh – UNC Wilmington
New Class of Skewed Distributions with Applications in Environmental Science

Rajarshi Dey – University of South Alabama
On Hazard Function of Kumaraswamy Distribution

Sy Han (Steven) Chiou – University of Texas at Dallas
Generalized Scale-Change Models for Recurrent Event Processes Under Informative Censoring

Suvra Pal – University of Texas at Arlington
Destructive Cure Rate Model Based on Multiple Treatments

3:50 – 5:50

October 5 – Parallel Session 2B – Dail Room EUC
Advances in Biostatistics and Epidemiology
Organizer & Chair: Sujit Ghosh – NC State University

Brian Neelon – Medical University of South Carolina
Bayesian Zero-Inflated Negative Binomial Regression Based on Pólya-Gamma Mixtures

Rajib Paul – UNC Charlotte
Assessing Health Disparities using Nonparametric Multivariate Density Estimation subject to Marginal Unimodality Constraints

Yunran Chen – Duke University
Testing Poisson versus Poisson mixtures with applications to neuroscience

Shrabanti Chowdhury – Icahn School of Medicine at Mount Sinai
Group Regularization for Zero-Inflated Models with Application to Health Care Demand in Germany

3:50 – 5:50

October 5 – Parallel Session 2C – Claxton Room EUC
Undergraduate Research with Data-Driven Analysis

Organizer & Chair: Mark Daniel Ward – Purdue University

Erik Wendt – Gettysburg College

Minimum Entropy Clustering of Functional Data

Siri Neerchal – University of Maryland

Assessing the Descriptive Epidemiology of Idiopathic Clubfoot in Iowa

Amelia Schroeder – East Tennessee State University

Comparison of Machine Learning Algorithms for Rapid Evaporative Ionization Mass Spectrometry (REIMS) Studies

James Marshall Reber – Purdue University

Markov Chains, Mixing Times, and Couplings

Michael A Smith – Purdue University

A Data-Driven Approach to Combinatorial Game Theory

6:00 – 8:00

**Reception Cone Ball Rooms – EUC
Hosted by Springer**

8:00 – 8:45

**Shuttles Back to Holiday Intn
Departures from outside of EUC: 8:00 pm, 8:15 pm, 8:30 pm, 8:45 pm
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October 6, 2018, Saturday

8:00 – 8:45

**Shuttles from Holiday Inn to UNCG
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8:00 – 9:00

Registration/Refreshments – EUC Auditorium Lobby

9:00 – 10:20

**October 6 – Plenary Session 3 – EUC Auditorium
Chair: William Li – Shanghai Advanced Institute of Finance**

David Dickey – NC State University

Unit Root Testing, a Historical Perspective

Sujit Ghosh – NC State University

Does Knowledge of Shapes Matter in Statistics?

10:20 – 10:40

Coffee Break

10:40 – 12:40

**October 6 – Parallel Session 3A – EUC Auditorium
Design of Experiments: Factorial Experiments
Organizers: John Stufken (Arizona State University) & Abhyuday Mandal (University of Georgia)
Chair: John Morgan – Virginia Tech**

Bobby Mee – University of Tennessee

Utilizing the Block Diagonal Covariance Structure of Nonregular Two-Level Designs

Huaiqing Wu – Iowa State University
Fractional Factorial Designs with Clear Two-Factor Interactions

William Li – Shanghai Advanced Institute of Finance
Individual Clear Effects for Fractional Factorial Designs

Arman Sabbaghi – Purdue University
An Algebra for the Conditional Main Effects Parameterization

10:40 – 12:40

October 6 – Parallel Session 3B – Sharpe Room EUC
Advanced Statistical Modeling of Genomic Data
Organizer & Chair: Sunyoung Shin – University of Texas at Dallas

Naim Rashid – University of North Carolina at Chapel Hill
Modeling Between-Study Heterogeneity for Improved Reproducibility in Gene Signature Selection and Clinical Prediction

Rhonda Bacher – University of Florida
SCnorm: A quantile-regression based approach for normalization of single-cell RNA-seq data

Sunyoung Shin – University of Texas at Dallas
atSNP Search: a web resource for statistically evaluating influence of human genetic variation on transcription factor binding

Yuchao Jiang – University of North Carolina at Chapel Hill
Full-spectrum Copy Number Variation Detection by High-throughput DNA Sequencing

Keegan Korthauer – Harvard T.H. Chan School of Public Health & Dana-Farber Cancer Institute
De novo detection and accurate inference of differentially methylated regions

10:40 – 12:40

October 6 – Parallel Session 3C – Dail Room EUC
High-Dimensional Variable Selection
Organizer & Chair: Sy Han (Steven) Chiou – University of Texas Dallas

Eliana Christou – University of North Carolina at Charlotte
Central Quantile Subspace

Ana Kenney – Penn State University
Computationally Viable and Effective Feature Selection in L_0 Norm

Thierry Chekouo T – University of Calgary
Bayesian Factor Analysis Regression with Incorporation of Grouping Information

Wenjie Wang – University of Connecticut
Integrative Survival Analysis with Uncertain Event Times in Application to a Suicide Risk Study

10:40 – 12:40

October 6 – Parallel Session 3D – Claxton Room EUC
Best Presentation Award Session for Undergraduate Students
Chair: Mark Daniel Ward – Purdue University
Jury: Haimeng Zhang (UNC Greensboro), Ivette Gomes (University of Lisbon), Suvra Pal (University of Texas at Arlington)

Yiwen Tang – Wake Forest University
Classifying Hate Speech Using a Two-Stage Model

Amber Young – Purdue University
Newer Variations of the Unrelated Question Binary RRT Model Examining the Impact of Untruthful Responding

Zavia Epps – Jackson State University

Evaluation of Deaggregation Methods Used to Simulate Unknown Premises Locations for Disease Models: Cattle Disease Outbreaks in Argentina

Austin Miller – University of Wyoming

Robust Trend Filtering and Outlier Detection

Shuchi Goyal – University of Georgia

Hierarchical Bayes Unit-Level Small Area Estimation Model for Normal Mixture Populations

Adrianna Kallis – Iowa State University

Visualizing IPUMS-I Demographics

10:40 – 12:40

October 6 – Parallel Session 3E – Alexander Room EUC

Best Presentation Award Session for Graduate Students

Chair: David Banks – Duke University & SAMSI

Jury: Scott Richter (UNC Greensboro), Sujit Ghosh (NC State University), David Banks (Duke University & SAMSI)

Bin Luo – UNC Greensboro

Penalized Re-Descending M Estimation with Non-Convexity for High-Dimensional Asymmetric Data

Joshua Lukemire – Emory University

d-QPSO: A Quantum-Behaved Particle Swarm Technique for Finding D-Optimal Designs with Discrete and Continuous Factors and a Binary Response

Abigael Nachtsheim – Arizona State University

Nonparametric Sub-Sampling for Big Data

Austin Lawson – UNC Greensboro

Persistence Curves: A New Vectorization of Persistence Diagrams

Liu Kai – McMaster University

Semi-Parametric Likelihood Inference for Birnbaum-Saunders Frailty Model

Claire Kiers – UNC Chapel Hill

Hurricanes and Rate-Induced Tipping

12:40 – 2:10

Lunch at Moran Commons Dining Center

12:40 – 2:10

JSTP Editorial Board Luncheon – Moran Commons Dining Center, Separate Reserved Area

2:15 – 4:15

October 6 – Parallel Session 4A – EUC Auditorium

Design of Experiments: Computer Experiments and Beyond

Organizers: John Stufken (Arizona State University) & Abhyuday Mandal (University of Georgia)

Chair: Angela Dean – Ohio State University

Thomas Santner – Ohio State University

Variable Selection for Deterministic Computer Simulator Output

Abhyuday Mandal – University of Georgia

EzGP: Easy-to-Interpret Gaussian Process Models for Computer Experiments with Both Quantitative and Qualitative Factors

Jon Stallings – NC State University

Sequential Design and Analysis of Mixture Experiments based on Gaussian Processes

Tirthankar Dasgupta – Rutgers University

Randomization Based Inference from Unbalanced Split Plot Designs

2:15 – 4:15

October 6 – Parallel Session 4B – Sharpe Room EUC
Complex High-Dimensional Data Analysis
Organizer & Chair: Xiaoli Gao – UNC Greensboro

Kei Hirose – Kyushu University, Japan
Prenet Penalization in Factor Analysis and its Applications

Yuan Huang – University of Iowa
A Joint Learning of Multiple Precision Matrices with Sign Consistency

Vadim Sokolov – George Mason University
Deep Learning for Spatio-Temporal Modeling

Jonathan P Williams – UNC Chapel Hill
Non-penalized Variable Selection via Generalized Fiducial Inference

Xiaoli Gao – UNC Greensboro
Robust Stochastic Gradient Decent for Online Learning

2:15 – 4:15

October 6 – Parallel Session 4C – Dail Room EUC
Topological Data Analysis
Organizer & Chair: Yu-Min Chung – UNC Greensboro

Edgar Lobaton – NC State University
Localized Topological Metric for Edge Detection in Images using CNNs

Vasileios Maroulas – University of Tennessee
Distributions of Persistence Diagrams and Approximations

Yu-Min Chung – UNCG
Topological Fidelity in Image Thresholding

Sayan Mukherjee – Duke University
How Many Directions Determine a Shape and other Sufficiency Results for Two Topological Transforms

2:15 – 4:15

October 6 – Parallel Session 4D – Claxton Room EUC
Recent Results in Combinatorics
Organizer & Chair: Clifford Smyth – UNC Greensboro

John Engbers – Marquette University
Extremal Independent Sets and Colorings in k -Chromatic Graphs

C. Matthew Farmer – UNC Greensboro
The Non-Crossing Bond Lattice

David Galvin – University of Notre Dame
Total Non-negativity of Some Combinatorial Matrices

James Rudzinski – UNC Greensboro
Efficient Generation of Unlabeled Graphs

Clifford Smyth – UNC Greensboro
Combinatorial Formulas for Restricted Stirling and Lah Number Matrices and their Inverses

2:15 – 4:15

October 6 – Parallel Session 4E – Alexander Room EUC
Genomics and Health
Organizer & Chair: Sunil Mathur – Texas A&M University-Corpus Christi

Sujay Dutta – University of Akron

Statistical Issues in Analyzing Next-Generation Sequencing Data

Bo Li – The Citadel

Simultaneous Inference of Differentially Expressed Isoforms for RNA Sequencing Data

Prashant Waiker – UNC Greensboro

Using Statistics to solve biological problems: An example of termite recombination

Jianping Sun – UNC Greensboro

Multivariate Association Test for Rare Variant Controlling for Cryptic and Family Relatedness

Sunil Mathur – Texas A&M University-Corpus Christi

Detecting Variability in Genome with Applications to Public Health

- 4:15 – 4:45** **Coffee Break**
- 4:45 – 5:45** **October 6 – Special Session: Perspectives on Statistical Consulting – A Panel Discussion**
Organizer: Emily Griffith – NC State University
Panel:
David Dickey – NC State University (Moderator)
Sujit Ghosh – NC State University
Siyun Yang – Duke University
Aric LaBarr – Elder Research
Scott Richter – UNC Greensboro
- 6:00 – 6:30** **NC-ASA Chapter Meeting (non-members also invited) – EUC Auditorium**
- 6:30 – 9:00** **Conference Banquet & NC-ASA Chapter Awards Ceremony, EUC Cone Ballrooms**
- 9:00 – 9:45** **Shuttles Back to Holiday Inn**
Departures from outside of EUC: 9:00 pm, 9:15 pm, 9:30 pm, 9:45 pm
Please do not wait for the last shuttle. You may remain stranded and may have to take an Uber.

October 7, 2018, Sunday

- 8:00 – 8:45** **Shuttles from Holiday Inn to UNCG**
Departures from Holiday Inn: 8:00 am, 8:15 am, 8:30 am, 8:45 am
Please do not wait for the last shuttle. You may remain stranded and may have to take an Uber.
- 8:00 – 9:00** **Registration/Refreshments – EUC Auditorium Lobby**
- 9:00 – 10:20** **October 7 – Plenary Session 4 – EUC Auditorium**
Chair: Javier Rojo – Oregon State University
Christopher Nachtsheim – University of Minnesota
Design Oriented Modeling

- Maria Ivette Gomes – University of Lisbon**
Generalized Means, Linear Combinations and Bias Reduction in the Estimation of Heavy Tails
- 10:20 – 10:40** **Coffee Break**
- 10:40 – 11:20** **October 7 – Plenary Session 5 – EUC Auditorium**
Chair: Maria Ivette Gomes – University of Lisbon
Javier Rojo – Oregon State University
Tails of Distributions – Classification and Testing
- 11:25 – 1:00** **October 7 – Parallel Sessions 5A – EUC Auditorium**
Design of Experiments: Big Data and More
Organizers: John Stufken (Arizona State University) & Abhyuday Mandal (University of Georgia)
Chair: Abhyuday Mandal – University of Georgia
John Stufken – Arizona State University
Information-Based Subdata Selection
Min Yang – University of Illinois at Chicago
Information-Based Optimal Subdata Selection for Mixture Modelling
Rakhi Singh – IITB-Monash Research Academy
Pseudo Generalized Youden Designs
- 11:25 – 1:00** **October 7 – Parallel Sessions 5B – Sharpe Room EUC**
Sampling Theory and Methods
Chair: G. N. Singh – IIT (ISM) Dhanbad, India
Javid Shabbir – Quaid-i-Azam University, Pakistan
Use of Successive Sampling Strategy for Finite Population Distribution Function Under Nonresponse
Sadia Khalil – Lahore College for Women University
Mean Estimation of Sensitive Variables under Measurement Errors Using Optional RRT Models
Qi Zhang – UNC Greensboro
Comparison of Mean Estimators of Sensitive Variables under Measurement Errors with Respect to Efficiency and Respondent Privacy
- 11:25 – 1:00** **October 7 – Parallel Sessions 5C – Dail Room EUC**
Mathematics and Statistics for the Earth’s Climate System
Organizer & Chair: Christian Sampson – SAMSI
Christian Sampson – SAMSI
Statistical Topography for Sea Ice Modeling
Colin Guider – UNC Chapel Hill
Ensemble Data Assimilation on a Non-Conservative Adaptive Mesh
Yu-Min Chung – UNC Greensboro
Computational Topology on Sea Ice Data
- 11:25 – 1:00** **October 7 – Parallel Sessions 5D – Claxton Room EUC**
Health Effects of Environment Pollution (Fri or Sun AM)
Organizer & Chair: Hrishikesh Chakraborty – Duke University

Sohini Raha – NC State University
On the Probability Distribution of Durations of Heatwaves

Yawen Guan – NC State University & SAMSI
Using Mobile Monitors for Fine-Scale Spatiotemporal Air Pollution Analysis

Philip White – Duke University
Modeling Daily Seasonality of Mexico City Ozone using Nonseparable Covariance Models on Circles Cross Time

1:00 – 2:30 **Lunch at Moran Commons Dining Center**

2:30 – 4:30 **October 7 – Parallel Session 6A – EUC Auditorium**
Design of Experiments: Recent Advances
Organizers: John Stufken (Arizona State University) & Abhyuday Mandal (University of Georgia)
Chair: John Stufken – Arizona State University

Lin Wang – UCLA
Optimal Maximin L1-Distance Latin hypercube Designs Based on Good Lattice Point Designs

Ming-Hung (Jason) Kao – Arizona State University
Locally Optimal Designs for Mixed Continuous and Binary Responses

Wei Zheng – University of Tennessee
Design Based Incomplete U-statistics

Shrabanti Chowdhury – Icahn School of Medicine at Mount Sinai
CV, ECV, and Robust CV designs for replications under a class of linear models in factorial experiments

2:30 – 4:30 **October 7 – Parallel Sessions 6B – Sharpe Room EUC**
Big Data Analytics for Biology, Healthcare, and Science
Organizer & Chair: Somya Mohanty – UNC Greensboro

Somya Mohanty – UNC Greensboro
A Data-Driven Analysis of Patient Rehospitalization Risk

Deborah Lekan – UNC Greensboro
Big Data Analysis of Electronic Healthcare Data

Sayed Mostafa – North Carolina A&T State University
Computing Happiness from Textual Data

Darpan Jhawar – UNC Greensboro
Big Data Analysis of Scientific Publications

Oana Dumitrescu – UNC Greensboro
Statistical Framework for Semantic Similarity Searching on Biological Data

Stacey Miertschein (Winona State University) & Amber Young (Purdue University)
A Data-driven Approach to Predicting Diabetes and Cardiovascular Disease with Machine Learning

2:30 – 4:30 **October 7 – Parallel Sessions 6C – Dail Room EUC**
Sampling Methods
Organizer & Chair: Javid Shabbir – Quaid-i-Azam University, Pakistan
Muhammad Ismail – COMSATS, Lahore, Pakistan

Generalized Ratio-Type Estimator for Population Variance Using Auxiliary Information in Simple Random Sampling

Hina Khan – Government College Lahore University

Efficient Monitoring of Process Mean Using Exponentially Weighted Moving Average Control Charts, Designed with Ratio Estimators under Ranked Set Sampling

Mahnaz Makhdum – Lahore College for Women University

A Modified Ratio Estimator of Population Mean of a Sensitive Variable in the Presence of Non-Response in Simple Random Sampling

Amber Asghar – NCBA&E Lahore & Virtual University of Pakistan

Regression-cum-Exponential Estimator for Finite Population Variance using Multi-Auxiliary Variables: A Simulation Study

2:30 – 4:30

October 7 – Parallel Sessions 6D – Claxton Room EUC

Spatial Statistics

Organizer & Chair: Haimeng Zhang – UNC Greensboro

Haimeng Zhang – UNC Greensboro

Intrinsic Random Functions and Universal Kriging on the Circle

Jong-Min Kim – SAMSI & University of Minnesota at Morris

The Copula Functional ARCH Directional Dependence for Intraday Volatility with High-frequency Financial Data

J. Beleza Sousa – CMA-ISEL Portugal

Stationary Yield to Maturity Zero Coupon Bonds Historical Simulation Value at Risk

Wei Chen – UNC Greensboro

Spectral Density Estimation for Power Model

Jesse Clifton – NC State University

Spatio-Temporal Decisions: Model-Based and Model-Free Approaches

Romesh Ruwan Thanuja – UNC Greensboro

Non-consistency of MOM Variogram Estimators on the Sphere

4:30 – 4:50

Coffee Break

5:00 – 5:30

Shuttles Back to Holiday Inn

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