Donald E. K. Martin
Associate Professor of Statistics
North Carolina State University

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Education: **University of Maryland, College Park**
Ph.D. in Mathematical Statistics, December 1990
Advisor: Benjamin Kedem

M.A. in Mathematical Statistics, 1987
B.S., Mathematics, 1982

Professional Experience:

North Carolina State University (NCSU), Raleigh, N.C., Department of Statistics
Associate Professor, Statistics Department, NCSU, Raleigh, NC. (**2007-present**)

Classes taught: ST370 Statistics for Engineers; ST372 Introduction to Statistical Inference and Regression; ST380 Statistics for Physical Sciences; ST421 Introduction to Mathematical Statistics I; ST434/534 Applied Time Series; ST435/535 Statistical Methods for Quality and Productivity Improvement; ST515 Experimental Statistics for Engineers I; ST522/702 Statistical Theory II; ST782 Time Series (Time Domain); ST783 Time Series (Frequency Domain)

Awards: College of Sciences Faculty Diversity Professional Development Award (2018); Dennis Boos Citizenship Faculty Award for 2021-2022

Honor: February 13, 2020 honoree of the Network of Minorities in Mathematical Sciences, https://mathematicallygiftedandblack.com/honorees/donald-martin/

Department service:

Co-Director of Graduate Programs (2015-2017)
Seminar committee (2007-2008, 2008-2009, 2010-2011, 2011-2012, chair 2019-2020)
Faculty search committee (2009-2010, 2017-2018; 2021-2022)
Dept. head search committee (2010-2011)
Course and curriculum committee (2008-2009, 2015-2017)
Written prelim exam committee (2009-2010, 2010-2011, 2011-2012, chair 2012-2013)
Graduate admissions committee (2010-2011, 2011-2012, 2015-2017)
Ph.D. Qualifier exam committee (August 2012, January 2013, August 2014, January 2015, January 2017, January 2019, chair August 2019, chair January 2021, chair January 2024)
Advancement Committee (2015-2017, August 2019, August 2023, January 2024)
Advisory Committee (2015-2017, 2018-2020)
Post-Tenure Review Committee (2016-2018)
Climate Committee (chair 2021-August 2023, January 2024-May 2024)

Diversity Committee (2022-May 2024)
Success Committee (August 2024-present)

PhD students supervised:

Deidra Coleman, Statistics (graduated May 2015, with Brian Reich)
Iris Bennett (2018- 2022) (with William Rand)
Tuhin Mujumder (2019-2022) (with Soumendra Lahiri)
Qiang Heng (2022-2023) (with Eric Chi)

Ph.D. Advisory Committee:

Shenek Alston, Statistics
Shengfan Zheng (Industrial and Systems Enginneering, 2009-2010)
Vamsi Jasti (Textiles Enginneering)
Hamed Yarmand (Industrial and Systems Eng., Spring 2012)
Zhibin Deng (Industrial and Systems Engineering, 2013)
Clemontina A. Davenport (Statistics, 2013)
Adrian Coles (Statistics, 2014)
William Yoo (Statistics, 2014)
Nicole Panza (Mathematics, 2014-2015)
Maggie Rahmoeller (Mathematics, 2014-2015)
Fabio Santeramo (Economics, 2014-2015)
Ryan Parker (Statistics, Summer 2015)
Christopher Brackett (Chemistry, 2016)
Fabio Gaetano Santeramo (Agricultural Engineering, 2016-2017)
Chong Wang (Statistics, 2016-2017)
Jordan Bakerman (Statistics, 2016-2017)
Xiaohong Chen (Mathematics, 2016-2018)
Brian Gaines (Statistics, 2016-2017)
Meredith King (Statistics, 2017-2018)
Arnab Chakroborty (Statistics, 2018-2019)
Chaowen Zheng (Statistics, 2018-2020)
Dustin Leininger (Mathematics 2019- 2020)
Amber Smith (Education, 2018-2021)
Luming Chen (Statistics, 2018- 2022)
Zun Yin (Statistics 2019-   )
Xinjie Du (Statistics 2021- 2023)
Kristen Windoloski (Mathematics 2022- 2023)
Yuwen Cheng (Statistics 2023-2024)

Master's Thesis Advisory Committee

Mallika Sinha (Industrial Ed, 2020)
Roya Albaloul (Civil Engineering, 2024)

Extension and engagement with constituencies outside university:

Gave talk to 8th graders at Moore Square Magnet Middle School (February 23, 2018)

Diversity Activities

Program Director, ADJOINT program, SLMath - https://www.slmath.org/adjoint/385

The Simons Laufer Mathematical Sciences Institute/SLMath (formerly Mathematical Sciences Research Institute/MSRI) has a new flagship program: ADJOINT (https://www.slmath.org/adjoint). Beginning with a two-week collaborative research session, ADJOINT is a yearlong endeavor that provides opportunities for U.S. mathematicians – especially those from the African Diaspora – to form collaborations with distinguished research leaders on topics at the forefront of the mathematical and statistical sciences. This program is led by five Directors:

> Edray Goins (Pomona College)
> Caleb Ashley (Boston College)
> Naiomi Cameron (Spelman College)
> Donald Martin (North Carolina State University)
> Anisah Nu'Man (Spelman College)

The objective of ADJOINT is to establish research communities of mathematicians, especially from the African Diaspora, and to create opportunities to work in small groups on research problems under the guidance of a research leader while providing professional development and mentorship.

Participation in the Math Alliance

The National Alliance for Doctoral Studies in the Mathematical Sciences ("Math Alliance") is a community of math sciences faculty and students that seeks to increase the number of doctoral degrees in the quantitative sciences among groups that have been traditionally underrepresented in those fields, among other goals. https://www.mathalliance.org/goals.html. The Math Alliance has a Facilitated Graduate Admissions Procedure (F-GAP) that provides information, mentoring and guidance for Math Alliance Scholars who are transitioning to graduate school. My involvement with the Math Alliance includes:

➢ Member of the Doctoral Faculty Council: a small group of faculty who oversee F-GAP mentoring teams (scholar, nominator, mentor) to help make sure that students are being assisted;
➢ Member of the Grad program follow-up committee, which seeks to better support Math Alliance Scholars through the graduate school experience. The committee drafts letters and questionnaires to send to graduate programs where it is believed that Math Alliance Scholars are enrolled each year to have them report to us on their status.
➢ The statistic department's liaison with the Math Alliance

Related is that I **lead the Statistics Departments' Math Alliance mentoring program**. There I assign a mentor to under-represented minority (URM) graduate students. Once a semester we meet to discuss student progress towards their degree.

Member of the ASA's JEDI outreach group

Editorial Service: Associate Editor, *Journal of Statistical Theory and Practice* (2010-present)

Co-Editor of Handbook of Statistics 50 (Modeling and analysis of longitudinal data), with Arni Rao and CR Rao.

Howard University, Washington, D.C.

Mathematics Department, Assistant Professor, **(1994-2000);** Associate Professor, Mathematics Department **(2000-2007)**

Classes Taught: Mathematical Statistics I & II (Graduate level); Stochastic Processes, Actuarial Science Lab I & II, Actuarial Science Seminar, College Algebra I & II, Precalculus, Calculus I, II, & III, Advanced Calculus, Differential Equations, Patterns in Mathematics.

Department service: Library Committee, Curriculum Committee, Hiring Search Committee, committees for promotions, written qualifying exams, the senior comprehensive exam, and for various final exams. Wrote and disseminated the department's newsletter (2006-2007).

Reviewed grant proposals for the Fund for Academic Excellence, Howard University (2003-2004).

Grants Received: Received Faculty Research Support Grant from Howard University, 1995.

Mathematical Statistician, U.S. Bureau of the Census. Time Series Research Group, Statistical Research Division (2000-2007)

Duties include: Research on seasonal adjustment of time series.

May-August (1997-1999) NASA-ASEE Summer Faculty Fellow, Goddard Space Flight Center, Greenbelt, Maryland.

Research Area: Estimation of the distribution and mean of rain rate from spaceborne radar data (NASA colleagues: David A. Short, Otto Thiele, Laboratory for Atmospheres, TRMM Office).

Mathematical Statistician, Energy Information Administration, Office of Statistical Standards, U.S. Dept. of Energy, Washington, D.C. (1990-1994)

Duties included: Led a study on data problems in energy models, reviewed feature articles written by other members of the Energy Information Administration for statistical soundness, assisted in audits of data collection systems, monitored contracts.

Professional Society Activities:

Member of the American Statistical Association (ASA)
Member of the ASA Committee on Minorities in Statistics (2000-2004)

Refereed Publications

Majumder, T., Lahiri, S., and **Martin, D.E.K.** Fitting sparse Markov models to categorical time series using regularization (under review).

Martin, D.E.K. and Bennett, I. Conditional distributions of statistics and other inferential procedures in states of hidden sparse Markov models (under review).

Bennett, I., **Martin, D.E.K.** and Lahiri, S. (2023). Fitting sparse Markov models through a collapsed Gibbs sampler. *Computational Statistics,* **38,** 1977-1994. https://doi.org/10.1007/s00180-022-01310-8.

Martin, D.E.K., Bennett, I., Majumder, T., Lahiri, S. (2022). Equivalence relations and inference for sparse Markov models. *Handbook of Statistics,* **46,** 79-103.

D. E. K. Martin (2020). Distributions of pattern statistics in sparse Markov models. *Annals of the Institute of Statistical Mathematics,* **72,** 895–913. https://doi.org/10.1007/s10463-019-00714-6.

D. E. K. Martin (2019). Minimal auxiliary Markov chains through sequential elimination of states. *Communications in Statistics, Simulation and Computation,* 48:4, 1040-1054, DOI: 10.1080/03610918.2017.1406505)

D. E. K. Martin (2019). Computation of exact probabilities associated with overlapping pattern occurrences. *WIREs Computational Statistics.* https://doi.org/10.1002/wics.1477

D. E. K. Martin (2018). Discrete scan statistics for higher-order Markovian sequences. *Handbook of Scan Statistics*, Joseph Glaz and Markos Koutras, editors, Springer.

D. E. K. Martin and L. Noe (2018). Faster exact probabilities for statistics of overlapping pattern occurrences. *Annals of the Institute of Statistical Mathematics*, 69(1), 231-248, doi **10.1007/s10463-015-0540-y**.

D. A. Coleman, **D. E. K. Martin** and Brian Reich (2015). Multiple window discrete scan statistics for higher-order Markovian sequences. *Journal of Applied Statistics,* 42(8), 1690-1705.

D. E. K. Martin (2015). P-values for the Discrete scan statistic through slack variables. *Communications in Statistics, Simulation and Computation,* 44(9), 2223-2239.

L. Noé and **D. E. K. Martin** (2014). A coverage criterion for spaced seeds and its applications to SVM string-kernels and k-mer distances. *Journal of Computational Biology*, December 2014, 21(12): 947-963. doi:10.1089/cmb.2014.0173.

D. E. K. Martin and J. A. D. Aston (2013). Distributions of statistics of hidden state sequences through the sum-product algorithm. *Methodology and Computing in Applied Probability*, 15(4), 897-918.

John A. D. Aston, J. Y. Peng, and **D. E. K. Martin** (2012). Implied distributions in multiple change point problems. *Statistics and Computing,* 22(4), 981-993, DOI: 10.1007/s11222-011-9268-6.

D. E. K. Martin and Deidra A. Coleman (2011). Distributions of clump statistics for a collection of words. *Journal of Applied Probability,* 48, 1049-1059.

D. E. K. Martin and J. A. D. Aston (2008). Waiting time distribution of generalized later patterns. *Computational Statistics and Data Analysis*, 52, 4879-4890.

D. E. K. Martin (2008). Application of auxiliary Markov chains to start-up demonstration tests. *European Journal of Operational Research*, 184(2), 574-583.

J. A. D. Aston and **D. E. K. Martin** (2007). Distributions associated with general runs and patterns in hidden Markov models. *Annals of Applied Statistics*, 1(2), 585-611.

D. E. K. Martin (2006). The Exact joint distribution of the sum of heads and apparent size statistics of a "Tandem Repeats Finder" algorithm. *Bulletin of Mathematical Biology*, 68, 2353-2364.

D. F. Findley and **D. E. K. Martin** (2006). Frequency domain analysis of SEATS and X-11-ARIMA seasonal adjustment filters for short and moderate-length time series. *Journal of Official Statistics*, 22 (1), 1-34.

D. E. K. Martin (2006). A recursive algorithm for computing the distribution of the number of successes in higher-order Markovian trials. *Computational Statistics and Data Analysis*, 50(3), 604-610.

D. E. K. Martin (2006). Hot-hand effects in sports and a recursive method of computing robabilities for streaks. *Computers & Operations Research*, 33, 1983-2001.

J. A. D. Aston and **D. E. K. Martin** (2005). Waiting time distribution of competing patterns in higher-order Markovian sequences. *Journal of Applied Probability,* 42, 977-988.

D. E. K. Martin (2005). Distribution of the number of successes in success runs of length at least k in higher-order Markovian sequences. *Methodology and Computing in Applied Probability*, 7, 543-554.

D. E. K. Martin (2004). Markovian start-up demonstration tests with rejection of units upon observing d failures. *European Journal of Operational Research* 155(2), 474-486.

W. R. Bell and **D. E. K. Martin** (2004). Computation of asymmetric signal extraction filters and mean squared error for ARIMA component models. *Journal of Time Series Analysis*, 25(4), 603-623.

D. E. K. Martin (2003). An algorithm to compute the probability of a run in binary fourth-order Markovian trials. *Computers & Operations Research* 30(4), 577-588.

D. E. K. Martin (2001). Influence functions of Estimators of mean rain rate. *Journal of Applied Statistics*, 28(2), 247-258.

D. E. K. Martin (2001). Applications of an algorithm for the distribution of the number of successes in fourth- or lower-order Markovian sequences. *Computational Statistics and Data Analysis* 37, 405-418.

D. E. K. Martin (2000). On the distribution of the number of successes in fourth- or lower-\order Markovian trials. *Computers & Operations Research*, 27(2), 93-109.

D. E. K. Martin (1999). Estimation of mean rain rate through censoring. *Journal of Applied Meteorology*, 38, 797-805.

D. E. K. Martin (1999). Detection of periodic autocorrelation in seasonal time series data via zero-crossings. *Journal of Time Series Analysis*, 20(4), 435-452.

D. E. K. Martin and J. Troendle (1999). Paired comparison models applied to the major league baseball playoffs. *Journal of Applied Statistics*, 26(1), 69-80.

D. E. K. Martin and B. Kedem (1993). Estimation of the period of periodically correlated sequences. *Journal of Time Series Analysis*, 14 (2), 193-205.

Other Publications

D. E. K. Martin (2015). Efficient formation of auxiliary Markov chains through determining rules for qquivalent states. In *American Statistical Association 2015 Proceedings of the Section on Computational Statistics.* Alexandria, VA: American Statistical Association.

D. E. K. Martin (2013). Coverage of spaced seeds as a measure of clumping. In *American Statistical Association 2013 Proceedings of the Section on Computational Statistics*. Alexandria, VA: American Statistical Association.

D. E. K. Martin (2011**).** Exact distribution of the discrete scan statistic for multi-state higher-order Markovian sequences. *American Statistical Association 2011 Proceedings of the Section on Computational Statistics.*

D. E. K. Martin and John A. D. Aston (2009). Distribution of Statistics of Hidden States Sequences Via the Sum-Product Algorithm Over Factor Graphs. *American Statistical Association 2009 Proceedings of the Section on Computational Statistics.*

D. E. K. Martin and Deidra A. Coleman (2009). Distribution of Clump Statistics for a Collection of Words. *American Statistical Association 2009 Proceedings of the Section on Computational Statistics.*

D. E. K. Martin and KeTrena S. Phipps (2009). Distribution of Spaced Seed Statistics through Minimal Markov Chain Embedding. *American Statistical Association 2009 Proceedings of the Section on Computational Statistics.*

D. E. K. Martin and J. A. D. Aston (2009). Exact Distribution of Hidden State Sequences Via Message Passing in Factor Graphs. In *IAENG Transactions on Engineering Technologies Volume 2: Special Edition of the World Congress 0n Engineering and Computer Science*, San Francisco, California, Oct. 22-24, 2008, pp. 141-152.

D. E. K. Martin and J. A. D. Aston (2008). A Unified Approach to Computing Distributions in Hidden State Sequences. *Proceedings of the International Conference on Machine Learning and Data Analysis*, San Francisco, California, Oct. 22-24, 2008. (** Won Best paper award for the conference **)

D. E. K. Martin and J. A. D. Aston (2008). A Unified Approach to Computing Distributions in Hidden State Sequences. *American Statistical Association 2008 Proceedings of the Section on Computational Statistics.*

D. E. K. Martin and J. A. D. Aston (2008). Distributions of Patterns and Statistics in Dynamic Conditional Random Fields. *Proceedings of the International Workshop on Applied Probability*, Compiegne, France, July, 2008.

J. A. D. Aston, M. J. Y Peng, and **D. E. K. Martin** (2008). Exploiting the duality between runs and change points, Oberwolfach Reports 12-2008 (ed: R Davis and J Franke).

J. A. D. Aston, M. J. Y Peng, and **D. E. K. Martin** (2008). Investigating the duality between runs and change points in hidden Markov models. International Workshop on Applied Probability, Compiegne, France, July, 2008.

J. A. D. Aston, M. J. Y Peng, and **D. E. K. Martin** (2008). Is that really the pattern we're looking for? Bridging the gap between statistical uncertainty and dynamic programming algorithms in pattern detection. (2008) Inference and Estimation in Probabilistic Time-Series Models, Isaac Newton Institute, University of Cambridge, UK.

D. E. K. Martin and J. A. D. Aston (2008). Waiting Time Distribution of Generalized Later Patterns. *Technical Report #08-11*, Center for Research in Statistical Methodology, Warwick University, Coventry, UK.

D. E. K. Martin and D.F. Findley (2006). Adjustment of Data from Period Reporters in Estimates of Monthly Retail Trade. *American Statistical Association 2006 Proceedings of the Section on Business and Economic Statistics.*

D. E. K. Martin and J. A. D. Aston (2005). Distribution of the rth Occurrence of a Compound Pattern in Higher-Order Markovian Sequences." *Technical Report Series, 2005-03, Institute of Statistical Science, Academia Sinica, Taipei.*

W. R. Bell and **D. E. K. Martin** (2004). Modeling Time-Varying Trading Day Effects in Monthly Time Series. *American Statistical Association 2004 Proceedings of the Section on Business and Economic Statistics.*

D. E. K. Martin (2003). A Recursive Method of Computing Probabilities for Compound Patterns in Multi-State Higher Order Markovian Trials. *American Statistical Association 2003 Proceedings of the Section on Computational Statistics*.

J. A. Aston, D. F. Findley, K. C. Wills and **D. E. K. Martin** (2003). Generalizations of the Box-Jenkins Airline Model with Frequency-Specific Seasonal Coefficients. *American Statistical Association 2003 Proceedings of the Section on Business and Economic Statistics.*

D. F. Findley and **D. E. K. Martin** (2003). Frequency Domain Analysis of SEATS and X-11-ARIMA Seasonal Adjustment Filters for Short and Moderate-Length Time Series. *Research Report Series (Statistics #2003-02), Statistical Research Division, US Bureau of the Census*.

D. F. Findley and **D. E. K. Martin** (2002). Frequency Domain Analysis of SEATS and X-11/12-ARIMA Seasonal Adjustment Filters for Short and Moderate-Length Time Series. *Proceedings of*

the 3rd International Symposium on Frontiers of Time Series (ed. Y. Kawaski), 95-120, Tokyo: Institute of Statistical Mathematics.

William R. Bell and **D. E. Martin** (2002). Computation of Asymmetric Signal Extraction Filters and Mean Squared Error for ARIMA Component Models. *Research Report Series (Statistics #2002-04), Statistical Research Division, US Bureau of the Census*.

D. F. Findley, **D. E. K. Martin** and K. C. Wills (2002). Generalizations of the Box-Jenkins Airline Model. *American Statistical Association 2002 Proceedings of the Section on Business and Economic Statistics.*

D. F. Findley and **D. E. K. Martin** (2001). Spectral Properties of Linear Concurrent and Symmetric Seasonal Adjustment Filters of SEATS and X-11/12-ARIMA for Short and Moderate-Length Time Series. *American Statistical Association 2001 Proceedings of the Section on Business and Economic Statistics.*

D. E. K. Martin (2000). Influence Functions of Estimators of Mean Rain Rate from Spaceborne Radar Data. *American Statistical Association 2000 Proceedings of the Section on Physical and Engineering Sciences.*

D. Martin (1999). An Algorithm for the Distribution of the Number of Successes in Fourth- or Lower-Order Markovian Sequences, *American Statistical Association 1999 Proceedings of the Section on Computational Statistics.*

Invited and Contributed Talks

Efficient computation of distributions of pattern statistics for many different input probabilities. Joint Statistical Meetings, Chicago, Illinois, August 8, 2024.

Application of sparse Markov models to the classification of genome sequences. Lange symposium, UCLA, January 26, 2024.

Conditional distributions in states of hidden sparse Markov models. University of Cambridge, UK, July 2023.

Inference for states of hidden sparse Markov models. International Workshop on Applied Probability, Thessaloniki, Greece, June 7, 2023.

Inference for hidden sparse Markov models. International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC), October, 2022.

Conditional distributions of statistics and other inferential procedures in states of hidden sparse Markov models. Statistics seminar, University of Maryland, May, 2022.

Sampling distributions of pattern statistics in sparse Markov models. Joint Statistical Meetings, Denver, Colorado, July 2019.

Distributions of pattern statistics in sparse Markov models. Statistics seminar, North Carolina State University, April 2019.

Distributions of pattern statistics in sparse Markov models. International Workshop on Applied Probability, Budapest, Hungary, June 2018.

Efficient computation of distributions of pattern statistics using probability equivalence classes. 5th Stochastic Modeling and Data Analysis International Conference, Chania, Crete, Greece, June 2018.

Efficient formation of auxiliary Markov chains for computing the distribution of the number of structured motifs. Joint Statistical Meetings, Chicago, Illinois, August 2, 2016.

Minimal auxiliary Markov chains through sequential elimination of states. International Workshop on Applied Probability, Toronto, Canada, June 21, 2016.

Efficient formation of auxiliary Markov chains through rules for equivalent states. Hampton University, November, 2015.

Efficient formation of auxiliary Markov chains through rules for equivalent states. Eastern Kentucky University, November, 2015.

Efficient formation of auxiliary Markov chains through rules for equivalent states. Clark Atlanta University, November, 2015.

Efficient formation of auxiliary Markov chains through rules for equivalent states. Joint Statistical Meetings, Seattle, Washington, August 2015.

Efficient computation of the distribution of spaced seed coverage. International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC 2014), October 2014.

Faster exact probabilities for distributions of overlapping pattern occurrences. Joint Statistical Meetings, Boston, Massachusetts, August 2014.

Faster exact probabilities for statistics of overlapping pattern occurrences. International Workshop on Applied Probability, Antalya, Turkey, June 17, 2014.

Distributions of scan statistics over hidden state sequences. International Symposium on Business and Industrial Statistics/Conference of the ASA Section on Statistical Learning and Data Mining. Durham, North Carolina, June 10, 2014.

Distribution of the Discrete Scan Statistic for Multi-state Higher-order Markovian Sequences. Statistics seminar, University of North Carolina, October 28, 2013.

Spaced Seeds as a Measure of Clumping. Joint Statistical Meetings, Montreal, Canada, August 7, 2013.

Probabilities for the Discrete Scan Statistic through Slack Variables. Statistics seminar, University of Warwick, Coventry, England, UK, July 2013.

Tail Probabilities of the Discrete Scan Statistic through Slack Variables. WNAR 2013, UCLA, June 2013.

Tail Probabilities of the Discrete Scan Statistic through Slack Variables. Howard University Math Colloquium, March 22, 2013.

P-values for the Discrete Scan Statistic through Slack Variables. International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro, North Carolina, October 5, 2012.

Scan Statistic Distribution through Slack Variables. Joint Statistical Meetings, San Diego, California, August 1, 2012.

Efficient Computation of Distributions of Pattern Statistics. Rice University, July 8, 2012.

Exact Distribution of the Discrete Scan Statistic for Multi-State Higher-Order Markovian Sequences. International Workshop on Applied Probability, Jerusalem, Israel, June 11, 2012.

Distributions of Statistics of Hidden State Sequences through the Sum-Product Algorithm, IMS-China, XiAn, ROC, July 8, 2011.

Efficient Computation of Distributions of Pattern Statistics, Spelman College Mathematics Department, Atlanta, Ga., March 21, 2011.

Exact Distribution of Prediction Error Rates for Protein and Domain Interactions, 2010 Joint Statistical Meetings, Vancouver, British Columbia, August 5, 2010.

Distribution of Statistics over Factor Graphs. International Workshop on Applied Probability, Madrid, Spain, July 6, 2010.

Distributions of Statistics of Hidden States Sequences Via the Sum-Product Algorithm Over Factor Graphs, 2009 Joint Statistical Meetings, Washington, DC., August 5, 2009.

Distribution of Statistics of Hidden State Sequences Through the Sum-Product Algorithm, Symposium in Honor of Benjamin Kedem, University of Maryland, College Park, July 31, 2009.

Modeling Time-Varying Trading Day Effects in Monthly Flow Time Series. Statistical Research Division Seminar, U.S. Bureau of the Census, July 23, 2009.

A Unified Approach to Computing Distributions in Hidden State Sequences. International Conference on Machine Learning and Data Analysis, San Francisco, California, Oct. 22-24, 2008.

A Recursive Approach for Computing Distributions of Pattern Statistics, Biostatistics seminar, North Carolina State University, September 11, 2008.

A Markov Chain Based Approach to Computing Distributions in Hidden State Sequences, 2008 Joint Statistical Meetings, Denver, Colorado, August 5, 2008.

A Unified Approach to Computing Distributions Associated with Hidden State Sequences, Statistics Seminar, Warwick University, July 14, 2008.

A Unified Approach to Computing Distributions in Hidden State Sequences, International Workshop on Applied Probability, Compiegne, France, July 8, 2008.

Distributions of Patterns and Statistics in Random Sequences, Statistics Seminar, North Carolina State University, September 14, 2007.

Distributions of Patterns and Statistics in Higher-Order Markovian Sequences, Statistics Seminar, University of Maryland, College Park, February 15, 2007.

Distributions of Patterns and Statistics in Higher-Order Markovian Sequences, Statistics Seminar, North Carolina State University, January 16, 2007.

Adjustment of Data from Period Reporters in Estimates of Monthly Retail Trade, 2006 Joint Statistical Meetings, Seattle, Washington, August 7, 2006.

Modeling Time-Varying Trading-Day Effects in Monthly Time Series, 2004 Joint Statistical Meetings, Toronto, Ontario, August 9, 2004.

A Recursive Method for Computing Run Probabilities in Binary Higher-Order Markovian Sequences, 2003 Joint Statistical Meetings, San Francisco, California, August 5, 2003.

Generalizations of the Box-Jenkins Airline Model, 2002 Joint Statistical Meetings, New York, NY, August 13, 2002.

Spectral Properties of Linear Concurrent and Symmetric Seasonal Adjustment Filters of SEATS and X-11/12-ARIMA for Short and Moderate-Length Time Series, 2001 Joint Statistical Meetings, Atlanta, Georgia, August 8, 2001.

Spectral Properties of Linear Concurrent and Symmetric Seasonal Adjustment Filters of SEATS and X-11/12-ARIMA for Short and Moderate-Length Time Series, International Symposium on Forecasting, Callaway Gardens, Georgia, June 20, 2001.

Influence Functions Applied to the Estimation of Mean Rain Rate, Statistical Research Division Seminar, U.S. Bureau of the Census, June 6, 2001.

Algorithms for Computing Probabilities Associated with Binary Fourth-Order Markovian Sequences, Statistics Seminar, University of Maryland, College Park, Maryland, February 15, 2001.

Applications of an Algorithm for the Distribution of the Number of Successes in Fourth- or Lower-Order Markovian Sequences, Washington Statistical Society, Bureau of Labor Statistics, September 14, 2000.

Influence Functions of Estimators of Mean Rain Rate from Spaceborne Radar Data, 2000 Joint Statistical Meetings, Indianapolis, Indiana, August 17, 2000.

An Algorithm for the Distribution of the Number of Successes in Fourth- or Lower-Order Markovian Sequences, 1999 Joint Statistical Meetings, Baltimore, Maryland, August 12, 1999.

Influence Functions for Estimators of Mean Rain Rate from Spaceborne Radar Data, Goddard Space Flight Center, Greenbelt, Maryland, June 4, 1999.

Asymptotic Variance of Estimators of Mean Rain Rate from Spaceborne Radar Data, Goddard Space Flight Center, Greenbelt, Maryland, June, 1998.

Estimation of Mean Rain Rate from Spaceborne Radar Data, Goddard Space Flight Center, Greenbelt, Maryland, August 1, 1997.

Detection of Periodic Autocorrelation in Seasonal Time Series Data Via Zero-Crossings, Statistical Research Division Seminar, U.S. Bureau of the Census, January 8, 1997.

Grants

Co-Principal Investigation (with Soumen Lahiri) - Statistical Analysis of Categorical Time Series through Sparse Markov Models (National Science Foundation, $100,000 DMS-1811933, 2018-2023).

Principal Investigator- Distributions of Patterns and Statistics in Random Sequences (National Science Foundation, $100,000 DMS-1107084, 2011-2014)

Principal Investigator- Distributions of Patterns and Statistics in Markovian Sequences (National Science Foundation, $150,000 DMS-0805577, 2008-2011)

Principal Investigator- Distributions of Patterns and Statistics in Probabilistic Graphical Models (NCSU, Faculty Research and Development Program, $4000, 2008-2009)

Reviews of Articles for Professional Journals

Reviewed manuscripts for *4OR: Quarterly Journal of the Belgium, French and Italian Operations Research Societies, Annals of Operations Research, Annals of Statistics, Annals of the Institute of Statistical Mathematics, Biostatistics, Communications in Statistics – Simulations and Computation, Computers & Operations Research, Data Analysis, Decision Support Science, Ecology, Environmental and Ecological Statistics, European Journal of Information Systems, European Journal of Operational Research, IEEE Transactions on Reliability, Informs Journal on Computing, PLOS ONE, Journal of Applied Probability, Journal of Quantitative Analysis in Sports, Journal of Statistical Theory and Practice, Journal of Time Series Analysis, Lifetime, Sankya, Statistica Sinica, Statistics in Medicine, The American Statistician.*

Organizing Conferences and Symposia

Organizer of International Workshop on Applied Probability (IWAP 2025)

Co-organizer of workshop "Recent Advances in Time Series Analysis, March 21-22, 2024, in honor of Benjamin Kedem. https://brinmrc.umd.edu/programs/workshops/spring24/spring24-workshop-timeseries.html
Organized symposium in honor of Benjamin Kedem: Advances in Statistics and Applied Probability, July 30-31, 2009, University of Maryland, College Park, Maryland.

Plenary Talks: Peter Bloomfield, Emanuel Parzen

Invited talks: Victor De Oliveira, Kostas Fokianos, Neal Jeffries, Ta-Hsin Li, Guanhua Lu, Donald Martin, Gerald North, Harry Pavlopoulis, Jing Qin, Ritaja Sur, James Troendle, Anastasia Voulgaraki

Reviews of External Grant Proposals

Review panels, NSF (2011, 2013), and various other NSF proposals

Reviewed proposal for NSA
Reviewed proposal for National Sciences and Engineering Research Council of Canada.