WAKE FOREST UNIVERSITY SCHOOL OF MEDICINE
CURRICULUM VITAE

NAME Sean L. Simpson, PhD.

ADDRESS
Wake Forest University School of Medicine
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EDUCATION

2002	Harvard University Cambridge, MA BA with honors in Applied Mathematics, subfield Medical Sciences
2008	University of North Carolina Chapel Hill, NC Ph.D. in Biostatistics Dissertation Title: Linear models with a generalized AR(1) covariance structure for longitudinal and spatial data. Advisor: Lloyd J. Edwards, PhD.

EMPLOYMENT

Academic Appointments

Wake Forest University School of Medicine, Wake Forest University

2008-2015	Assistant Professor (tenure-track), Division of Public Health Sciences, Department of Biostatistics and Data Science
2008-Present	Affiliate, Maya Angelou Center for Health Equity
2009-Present	Member, Laboratory for Complex Brain Networks (LCBN)
2009-Present	Graduate Faculty, Wake Forest University
2009-Present	Joint Appointment, WFUSM Translational Science Institute

2010-Present	Member, Center for Bioethics, Health, and Society
2013-Present	Affiliate Faculty, School of Biomedical Engineering and Sciences
2015-Present	Faculty, Neuroscience Program
2015-2021	Associate Professor (tenured), Division of Public Health Sciences, Department of Biostatistics and Data Science
2015-Present	Statistical Consultant, Center for Neurobiology of Addiction Treatment (CNAT)
2016-Present	Affiliate, Alzheimer's Disease Research Center, Data Management and Statistics Core
2020-Present	Member, Neuroscience Clinical Trial and Innovation Center
2021-Present	Professor (tenured), Division of Public Health Sciences, Department of Biostatistics and Data Science

University of North Carolina at Chapel Hill

2013-2016	Adjunct Assistant Professor, Department of Biostatistics
2016-2021	Adjunct Associate Professor, Department of Biostatistics
2022-Present	Adjunct Professor, Department of Biostatistics

Professional Experience

Summer 1997	NASA Intern Hampton, VA
1998-2001	Summer Intern, Virginia Power Department of Distribution Operations Richmond, VA
2001-2002	Undergraduate Research Assistant, Malaria Research School of Engineering and Applied Sciences Harvard University, Cambridge, MA
2003	Graduate Research Assistant Health Promotion and Disease Prevention Center University of North Carolina, Chapel Hill, NC

2003	Graduate Research Assistant UNC-Chapel Hill Medical School University of North Carolina, Chapel Hill, NC
2004-2007	Graduate Research Assistant, Medical Image Presentation Department of Biostatistics University of North Carolina, Chapel Hill, NC
2007-2008	Graduate Research Assistant Initiative for Maximizing Student Diversity (IMSD) Department of Biostatistics University of North Carolina, Chapel Hill, NC

ADMINISTRATIVE SERVICE

School of Medicine and Institutional Service

2009-2018	Research Committee, Maya Angelou Center for Health Equity
2010-2012	Medical Student Research Program, Reviewer
2010-2012	Medical Student Research Day, Judge
2013	K Award Writers' Series, Guest Facilitator
2013-2014	Biomedical Informatics Program Taskforce Committee
2014-2015	High Performance Computing Advisory Committee
2014-2015	High Performance Computing Education Subcommittee
2015-2021	CTSI Biostatistics, Epidemiology and Research Design (BERD) Program, Methodology Consultant
2016-2017	Informatics Director Search Committee
2016-Present	CTSI Research Studio Expert
2017, 2021-Present	CTSI Career Development Grant (K12), Reviewer
2018-2019	Graduate Council Committee, Long-Range Planning and Cross-Campus Initiatives
2018-2021	CTSI Methods Conference Lead Organizer and Chair
2019-Present	Mentor, Bridge Mentoring Program
2020-Present	Mentor, Kennedy Hopkins Scholars Mentor Program

2020-2021	Research Operations Committee [Faculty Standing Committee]
2021-2023	Faculty Search Committee, Maya Angelou Center for Health Equity and Social Sciences and Health Policy
2021	Invited Facilitator, Leadership in Color Conference
2021-Present	Core Faculty, CTSI Career Development Program (K12)
2022-2023	CTSI Methods Conference Planning Committee
2022-Present	K&R Writers Series Faculty Reviewer
2022-Present	K&R Writers Mock Study Section Reviewer
2022	CTSI BERD Methods RFA Reviewer
2023	Participant, URM Faculty Peer Mentoring Group
2023-Present	WFUSM Promotion and Tenure Committee [Faculty Standing Committee]
2024-Present	Mentor, Postbaccalaureate Research Education Program (PREP)
2025	Judge, CTSI Research Scholar Showcase
2025	Department of Surgery Grants Committee (Atrium)

Divisional and Departmental Service

2008-2013	Custodial Staff Holiday Gift Organizer, Biostatistics and Data Science
2008-2010	Faculty Recruitment Committee, Biostatistics and Data Science, Section on Statistical Genetics and Bioinformatics
2010	Faculty Recruitment Committee, Biostatistics and Data Science
2010	Space Committee, Biostatistics and Data Science
2010	Staff Appreciation Committee, Biostatistics and Data Science
2010	Internal Pilot Projects Review Committee, Biostatistics and Data Science

2011	Imaging Strategic Planning Committee (Chair), Biostatistics and Data Science
2011	Strategic Planning Committee, Biostatistics and Data Science
2012	Computing Committee, Public Health Sciences
2012	Computing Review Committee, Biostatistics and Data Science
2012-2013	Seminar Series/Committee Head, Biostatistics and Data Science
2012-2013	Executive Committee Member, Biostatistics and Data Science
2017	Strategic Directions Committee, Biostatistics and Data Science
2019-2020	Faculty Recruitment Committee (Chair), Biostatistics and Data Science
2019-Present	PHS Research and Development Fund Committee
2020-2021	PHS Diversity, Equity, and Inclusion (DEI) Group
2021	Data Science Working Group, Biostatistics and Data Science
2021	PHS DEI Recruitment and Hiring Working Group
2021-Present	PHS Promotion and Tenure Committee
2022-Present	Reviewer, PHS Top 10 Papers
2022	PHS DEI Promotion Rate Analysis Working Group
2022-2023	Faculty Search Committee, Epidemiology and Prevention
2022-2024	PHS DEI Committee (Co-Chair)
2023-2024, 2024-2025	Faculty Recruitment Committee, Biostatistics and Data Science
2024	Session Moderator, Novel Analytic Methods, PHS Ignite Symposium
2024-Present	PHS Education Committee

EXTRAMURAL APPOINTMENTS AND SERVICE

Funding Agency Reviewer

NIH, Challenge Grant Reviewer, 2009

Netherlands Organization for Scientific Research (NWO, Dutch Research Council) External Reviewer, 2012

NIH, Selected as a Participant in the Early Career Reviewer Program, Center for Scientific Review, 2013

NIH, NSD-A Study Section Temporary Member, 2016

NIH, BMRD Study Section Temporary Member, 2017

NIH, ZNS1 SRB-D05 Study Section Member, 2019

NIH, BMRD Study Section Temporary Member, 2020

NIH, EITN Study Section Temporary Member, 2020

Editorial Boards

Host Co-Editor, *Frontiers Research Topic*, 2012-2014

Associate Editor, *Biostatistics*, 2018-Present

Associate Editor, *The American Statistician*, 2020-Present

Associate Editor, *Data Science in Science*, 2021-Present

Associate Editor, *Statistics and Data Science in Imaging*, 2024-Present

Advisory Boards and Committees

Winston-Salem State Mathematics Department Advisory Committee, 2022-Present

Promotion/Appointment Referee

University of Alberta, Department of Accounting and Business Analytics, 2022

Wake Forest University School of Medicine, Department of Surgery, 2022

Albert Einstein College of Medicine, Department of Epidemiology & Population Health, 2022

Case Western Reserve University School of Medicine, Department of Population and Quantitative Health Sciences, 2022

Emory University, Rollins School of Public Health, Department of Biostatistics and Bioinformatics, 2022

Indiana University School of Public Health, Department of Epidemiology & Biostatistics, 2023

University of North Carolina at Chapel Hill, Department of Statistics and Operations Research, 2024

Wake Forest University School of Medicine, Department of Epidemiology & Prevention, 2024

UTHealth Houston School of Public Health, Department of Biostatistics and Data Science, 2024

Journal Reviewer

Frontiers in Human Neuroscience
PLoS ONE
Computational Statistics and Data Analysis
Journal of the American Statistical Association
Journal of Applied Statistics
Statistics in Medicine
Frontiers in Computational Neuroscience
NeuroImage
NeuroImage: Clinical
Human Brain Mapping
Biometrical Journal
Drug and Alcohol Dependence
Journal of Statistical Theory and Practice
Network Neuroscience
Network Science
IEEE Transactions on Medical Imaging
Biostatistics
Computational Brain and Behavior
Imaging Neuroscience

PROFESSIONAL MEMBERSHIPS AND SERVICE

Memberships

1998-2001	Member, Harvard Japan Society
1998-2002	Member, National Society for Black Engineers
2006-Present	Member, American Statistical Association (ASA)
2009-Present	Member, International Biometric Society/ENAR
2010-Present	Member, Organization for Human Brain Mapping
2010-Present	Member, Statistics Without Borders
2016-Present	Member, ASA Section on Statistics in Imaging
2021-Present	Member, ASA Justice, Equity, Diversity, and Inclusion (JEDI) Outreach Group

2022-2023	Technical Working Group Member, National Endowment for the Arts (NEA) Research Lab, UMass Amherst (LAB:SYNC)

Service

2001-2002	Senior Representative (Board Member) Harvard Society for Black Scientists and Engineers
2007-2008	Member, Minority Health Broadcast Committee, UNC School of Public Health
2008, 2012, 2023	Invited Panelist, Eastern North American Region of the International Biometric Society (ENAR) Fostering Diversity in Biostatistics Workshop
2010, 2012, 2013, 2018	Participant, ENAR Fostering Diversity in Biostatistics Workshop
2012-2013	Organizing Committee, ENAR Junior Researcher's Workshop
2012	Chair, Session on High-Dimensional Data, International Biometric Conference
2013	Chair, Session on Functional Connectivity, Statistical and Applied Mathematical Sciences Institute (SAMSI)-Neuroimaging Data Analysis Workshop
2012, 2014, 2015, 2017, 2019, 2022, 2023, 2024	Mentor, ASA Diversity Mentoring Program
2014-2016	Appointed Member, ENAR Regional Advisory Board (RAB)
2014-2016	Judge, ENAR Poster Award Competition
2014-2017	Co-Chair, ENAR Fostering Diversity in Biostatistics Workshop
2014-2017	Member, ENAR Diversity Workshop Executive Committee
2016	Invited Panelist, UNC Dept. of Biostatistics PhD Alumni Panel
2017-2019	Elected Member, ENAR Regional Committee (RECOM)
2018	Invited Panelist, StatFest Conference
2019	Invited Panelist, ASA Diversity Workshop and Mentoring Program
2019	Invited Panel Moderator, StatFest Conference
2021, 2022, 2024	Invited Reviewer, ASA Statistics in Imaging Student Paper Competition
2020-Present	Math Alliance Mentor

2021-2022	Appointed Member, ENAR Nominations Committee
2021-Present	Appointed Member, International Biometric Society (IBS) Representative Council
2022-2023	Organizing Committee, Institute for Mathematical and Statistical Innovation (IMSI) Workshop on Object Oriented Data Analysis
2022-2023	Organizing Committee, Banff International Research Station for Mathematical Innovation and Discovery (BIRS)Workshop on Object Oriented Data Analysis
2023-2024	Organizing Committee, Institute for Mathematical and Statistical Innovation (IMSI) Workshop on Challenges in Neuroimaging Data Analysis
2024	Chair, Session on Image Processing, Institute for Mathematical and Statistical Innovation (IMSI) Workshop on Challenges in Neuroimaging Data Analysis
2025	Roundtable Discussion Facilitator, ENAR Fostering Diversity in Biostatistics Workshop

PROFESSIONAL DEVELOPMENT

2009	Roundtable: Statistics in Medical Imaging International Biometric Society ENAR Meeting
2009	Short Course: Statistical Modeling and Analysis of Brain Imaging Data International Biometric Society ENAR Meeting
2009	Workshop for Junior Researchers International Biometric Society ENAR Meeting
2010	NetSci-Network Science School and Conference (Attendee)
2010	Translational Research Academy, Translational Science Institute Wake Forest University School of Medicine
2010-2011	Statistical and Applied Mathematical Sciences Institute (SAMSI)-Program on Complex Networks (Participant)
2013	NBCF Nonlinear Analysis Summer Workshop (Participant)

HONORS AND AWARDS

1998	Awarded Scholarship from the National Action Council for Minorities in Engineering for Excellence in Mathematics and Engineering

1998-2002	Awarded Virginia Power/Dominion Power Scholarship for Excellence in Mathematics and Engineering
2002-2003	Awarded Julie Gatewood Latane Fellowship in Interdisciplinary Living
2002-2004	Awarded Fryer Fellowship/Merit Scholarship, Department of Biostatistics, University of North Carolina
2002-2007	Awarded Royster Fellowship/Merit Scholarship, Graduate School, University of North Carolina
2003-2006, 2007-2008	Recipient of NICHD Grant for Population Studies, Department of Biostatistics (Chirayath Suchindran), University of North Carolina
2004-2006	Recognized in The Chancellor's List (Honoring America's Outstanding Graduate Students)
2010-2015	Selected as a Translational Research Academy Scholar (Wake Forest University School of Medicine)
2015	Selected as a Delta Omega Theta Chapter Member, Gillings School of Global Public Health, University of North Carolina
2018	Recipient of the Wake Forest University School of Medicine Mid-Career Investigator in Basic Science Award
2018-2022	Research Excellence Award, Wake Forest University School of Medicine
2022	Elected as a Fellow of the ASA
2023	Top 10 Research Papers in 2022 Award, Division of Public Health Sciences, Wake Forest University School of Medicine (Publication #60)
2023	Recipient of the Wake Forest University School of Medicine New Team Science Award (Project MARVEL)
2023	Recipient of the Atrium Health Wake Forest Baptist BELONGING AWARD FOR INCLUSION (PHS DEI Committee)

PROFESSIONAL INTERESTS

Network- and Complexity-Based Neuroimaging, Repeated Measures Analysis, Covariance Modeling, Health/Social Disparities

GRANT FUNDING

Currently Active Grants

NIAAA P50 AA026117 (Weiner PI; **Simpson, Co-I, 13% effort**) 12/01/2022 - 11/31/2027
Wake Forest Translational Alcohol Research Center (WF-TARC) $1,038,671 (Current Year)
This project will focus on craving as a potential marker for AUG vulnerability as it is the primary predictor of AUD relapse.

NIH U24HL155802 (Pajewski, PI; **Simpson, Co-I, 10% effort**) 09/01/2021 – 08/31/2026
Data Coordinating Center for the Long-term Effectiveness of the Anti-obesity medication Phentermine: the LEAP Trial $2,017,004 (Total)
We will conduct a randomized clinical trial to compare weight loss and other health outcomes for patients assigned to take phentermine or placebo for up to two years.

NIH UL1TR001420 (McClain, PI; **Simpson, Co-I, 10% effort**) 08/13/2015 – 06/30/2029
Wake Forest Clinical and Translational Science Award $2,467,668 (Current Year)
The purpose of this Clinical and Translational Science Award (CTSA) application is to synergize the fundamental positive changes that the Translational Science Institute has already brought to bear at Wake Forest Baptist Health. Strategic Goal 5: Promote research sustainability by increasing efficiency through effective organization, governance, collaboration, and communication.

NIDA R01 DA052827 (Meade, PI; **Simpson, Co-I, 10% effort**) 09/01/2023 – 08/31/2025
Modeling the Effects of Chronic Marijuana Use of Neuroninflammation and HIV-Related Neuronal Injury $4,293,032 (Total)
Neurological complications of HIV disease remain a persistent clinical problem even in the age of combination antiretroviral therapy. Marijuana, which is the most common abused drug among persons with HIV, may have therapeutic benefit, but it may also be associated with neurobiological harms. This study applies a hypothesis-driven approach to examine the effects of chronic marijuana use on HIV-associated inflammation and its subsequent impacts on central nervous system function, with the goal of identifying the mechanisms through which cannabinoids modulate neurological disorders and other comorbidities in person with HIV.

NIDA R01 DA061952 (Meade, PI, **Simpson, Co-I, 12% effort**) 09/01/2024 – 08/31/2029
Neuroimmune Pathways Linking Chronic Psychosocial Stress Is Co-Occurring Stimulate Use and Depression In HIV Disease: A Mechanistic Clinical Trial $6,141,958
To identify neuroimmune mechanisms that underlie the intersection of social stigma, anhedonia, and altered reward processing in PWH who use stimulants (e.g., cocaine, methamphetamine).

Pending Grants

R01 MH137073 (**Simpson, PI; 30% effort**) 07/01/2025 – 06/30/2030
Analytical Tools for Human Connectome Project (HCP) Data $3,826,162
This project will (a) demonstrate the utility of new tools for relating phenotypic traits to brain network organization in HCP data—engendering deeper insights into the complex neurobiological interactions and changes that occur in brain health and disease, and (b) disseminate these tools with corresponding tutorials via the NIMH Data Archive (NDA) cloud environment to enhance rigor and reproducibility.

R01 AG091309 (**Simpson, PI; 40% effort**) 09/01/2025 – 08/31/2030
Analytical tools for assessing and predicting longitudinal vulnerability and resilience in Alzheimer's Disease studies leveraging the Multi-Ethnic Study of Atherosclerosis (MESA) $3,645,273
The goals of this project are to (a) develop and disseminate statistical tools to fill critical methodological gaps in identifying spatial, temporal, and dynamic brain network correlates of vulnerability and resilience to AD/ADRD; and (b) explicitly address the recommendations of the NIH ADRD Summits by leveraging

an ongoing longitudinal cohort study of incident dementia in diverse populations incorporating detailed clinical assessments and neuroimaging (Multi-Ethnic Study of Atherosclerosis), and improving assessment tools and assessing risk factors for cognitive decline and resilience in the context of ADRD among disparities populations.

Past Grant History

NIDA R01DA0470149, Role of Cannabis on HIV-Related Cognitive Impairment: A Brain Connectomics Study (Meade, PI, Simpson, Co-I, 10% effort), 08/01/2023 – 04/30/2024, $3,131,384

NIDA R01DA045565, MRI Data Fusion to Investigate Effects of Drug Abuse On HIV Neurological Complications (Meade, PI; Simpson, Co-I, 15% effort), 08/01/2023 – 01/31/2024, $2,025,642

NIH R01ES008739, The Effect of Pesticide Exposure on Cognitive and Brain Development In Latino Children: Pace5 (Laurienti, PI; Simpson, Co-I, 10% effort), 07/01/2017 – 05/31/2023 $421,425 (last year)

NIBIB R01EB024559, Analytical Tools for Complex Brain Networks: Fusing Novel Statistical Methods and Network Science to Understand Brain Function (Simpson, PI; 65% effort), 04/01/2018 – 03/31/2022, $2,215,606

NIAAA P50AA026117, Wake Forest Translational Alcohol Research Center (WF-TARC) (Weiner, PI; Simpson, Co-I, 10% effort), 12/01/2017 – 11/30/2022, $8,861,869

Michael J Fox Foundation, Use of a Non-Invasive Brainstem Neuromodulation Device to Improve Neurovascular Status in Parkinson's Disease (Whitlow, PI; Simpson, Co-I, 2% effort Yr 1, 5% effort Yr 2) 09/01/2020 – 08/31/2022, $240,974

NIA P30AG049638, Wake Forest Alzheimer's Disease Research Center: Data Management and Statistical Core, (Craft, PI; Simpson, Co-I, 5% effort), 09/01/2016 – 06/30/2021, $147,513.

Chronic Effects of Neurotrauma Consortium (CENC), Structural and Functional Neurobiology of Veterans Exposed to Primary Blast Forces, (Taber, PI; Simpson, Co-I, 15% effort), 05/01/2018 – 09/30/2019, $505,567.

NIBIB K25EB012236-01A1, Statistical Methods for Whole-Brain Connectivity Networks, (Simpson, PI), 09/01/2012 – 04/30/2018, $745,154.

WFU Translational Scholar Award, Age-Related Whole-Brain Analyses via Exponential Random Graph Modeling Methods, (Simpson, PI), 07/01/2010 - 06/30/2012, $221,513.

NHLBI, Jackson Heart Study MRI, (Carr, PI; Simpson Co-Investigator), 09/15/2007 – 08/31/2012, $412,796.

NCMHD, The Native Proverbs 31 Health Project, (Bell, PI; Simpson, Co-Investigator), 11/01/2010 – 10/31/2012, $275,000.

NHLBI, The Coronary Artery Risk Development in Young Adults (CARDIA), (Carr, PI; Simpson, Biostatistician) 09/01/2009 - 09/30/2009, $308,135.

BIBLIOGRAPHY (Advised Graduate Students Underlined)

Peer-Reviewed Publications

METHODOLOGICAL JOURNAL ARTICLES

1. Muller KE, Edwards LJ, **Simpson SL**, Taylor DJ (2007). Statistical Tests with Accurate Size and Power for Balanced Linear Mixed Models. *Statistics in Medicine* 26, 3639-3660.

2. Johnson JL, Muller KE, Slaughter JC, Gurka MJ, Gribbin MJ, **Simpson SL** (2009). POWERLIB: SAS/IML Software for Computing Power in Multivariate Linear Models. *Journal of Statistical Software* 30, 1-27. PMCID: PMC4228969.

3. **Simpson SL**, Edwards LJ, Muller KE, Sen PK, Styner MA (2010). A Linear Exponent AR(1) Family of Correlation Structures. *Statistics in Medicine* 29, 1825-1838. PMCID: PMC4020183. ***Now implemented in the MIXED and GLIMMIX procedures in SAS (2018)**

4. **Simpson SL** (2010). An Adjusted Likelihood Ratio Test for Separability in Unbalanced Multivariate Repeated Measures Data. *Statistical Methodology* 7, 511-519.

5. **Simpson SL**, Hayasaka S, Laurienti PJ (2011). Exponential Random Graph Modeling for Complex Brain Networks. *PLoS ONE* 6(5), e20039. PMCID: PMC3102079.

6. Telesford QK, **Simpson SL**, Burdette JH, Hayasaka S, Laurienti PJ (2011). The Brain as a Complex System: Using Network Science as a Tool for Understanding the Brain. *Brain Connectivity* 1(4), 295-308. PMCID: PMC3621511.

7. **Simpson SL**, Moussa MN, Laurienti PJ (2012). An Exponential Random Graph Modeling Approach to Creating Group-Based Representative Whole-Brain Connectivity Networks. *NeuroImage* 60, 1117-1126. PMCID: PMC3303958.

8. **Simpson SL**, Edwards LJ (2013). A Circular LEAR Correlation Structure for Cyclical Longitudinal Data. *Statistical Methods in Medical Research* 22, 296-306.

9. **(Invited Review) Simpson SL**, Bowman FD, Laurienti PJ (2013). Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain. *Statistics Surveys* 7, 1-36. PMCID: PMC4189131.

10. **Simpson SL**, Lyday RG, Hayasaka S, March AP, Laurienti PJ (2013). A Permutation Testing Framework to Compare Groups of Brain Networks. *Frontiers in Computational Neuroscience* 7, 171. PMCID: PMC3839047.

11. **Simpson SL**, Edwards LJ, Muller KE, and Styner MA (2014). Kronecker Product Linear Exponent AR(1) Correlation Structures for Multivariate Repeated Measures Data. *PLoS One* 9(2), e88864. PMCID: PMC3931642.

12. Edwards LJ, **Simpson SL** (2014). An Analysis of 24-Hour Ambulatory Blood Pressure Monitoring Data using Orthonormal Polynomials in the Linear Mixed Model. *Blood Pressure Monitoring* 19, 153-163. PMCID: PMC4058995.

13. **Simpson SL**, Edwards LJ, Muller KE, and Styner MA (2014). Separability Tests for High-Dimensional, Low Sample Size Multivariate Repeated Measures Data. *Journal of Applied Statistics* 41, 2450-2461. PMCID: PMC4203479.

14. **Simpson SL**, Laurienti PJ (2015). A Two-Part Mixed-Effects Modeling Framework For Analyzing Whole-Brain Network Data. *NeuroImage* 113, 310-319. PMCID: PMC4433821.

15. Ip EH, Zhang Q, Sowinski T, **Simpson SL** (2015). Analysis of Feedback Mechanisms with Unknown Delay Using Sparse Multivariate Autoregressive Method. *PLoS One*, 10 (8): e0131371. PMCID: PMC4529169.

16. **Simpson SL**, Laurienti PJ (2016). Disentangling Brain Graphs: A Note on the Conflation of Network and Connectivity Analyses. *Brain Connectivity*, 6(2), 95-98. PMCID: PMC4779980.

17. **(Invited Review)** Solo V, Poline J-B, Lindquist MA, **Simpson SL**, Bowman FD, Chung MK, Cassidy B (2018). Connectivity in fMRI: Blind Spots and Breakthroughs. *IEEE Transactions on Medical Imaging*, 37(7), 1537-1550. PMCID: PMC6291757.

18. **Simpson SL**, Bahrami M, Laurienti PJ (2019). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Network Neuroscience* 3(2), 307-324. PMCID: PMC6370463.

19. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2019). A Matlab Toolbox for Multivariate Analysis of Brain Networks. *Human Brain Mapping* 40(1), 175-186. PMCID: PMC6289822.
***Top 10% most downloaded papers in Human Brain Mapping (2018-2019)**

20. Mokhtari F, Akhlaghi MI, **Simpson SL**, Wu G, Laurienti PJ (2019). Sliding Window Correlation Analysis: Modulating Window Shape for Dynamic Brain Connectivity in Resting State. *NeuroImage* 189, 655-666. PMCID: PMC5911254.

21. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2019). Analysis of Brain Subnetworks Within the Context of Their Whole-Brain Networks. *Human Brain Mapping* 40(17), 5123-5141. PMCID: PMC6865778.

22. Bahrami M (PhD Advisee), Lyday RG, Casanova R, Burdette JH, **Simpson SL**, Laurienti PJ (2019). Using Low-Dimensional Manifolds to Map Relationships Between Dynamic Brain Networks. *Frontiers in Human Neuroscience* 13, 430. PMCID: PMC6914694.

23. Casanova R, Lyday RG, Bahrami M, Burdette JH, **Simpson SL**, Laurienti PJ (2021). Embedding Functional Brain Networks in Low Dimensional Spaces Using Manifold Learning Techniques. *Frontiers in Neuroinformatics* 15.

24. Tomlinson CE (PhD Advisee), Laurienti PJ, Lyday RG, **Simpson SL** (2022). A Regression Framework for Brain Network Distance Metrics. *Network Neuroscience* 6(1), 49-68.

25. **(Invited Discussion)** Shappell HM, **Simpson SL** (2022). Discussion on "Distributional Independent Component Analysis for Diverse Neuroimaging Modalities" by Ben Wu, Subhadip Pal, Jian Kang, and Ying Guo. *Biometrics* 78(3), 1106-1108. PMCID: PMC9475488.

26. Bahrami M, Laurienti PJ, Shappell HM, Dagenbach D, **Simpson SL** (2022). A Mixed-Modeling Framework for Whole-Brain Dynamic Network Analysis. *Network Neuroscience* 6(2), 591-613. PMCID: PMC9208000.

27. Tomlinson CE (PhD Advisee), Laurienti PJ, Lyday RG, **Simpson SL** (2022). 3M_BANTOR: A Regression Framework for Multitask and Multisession Brain Network Distance Metrics. *Network Neuroscience* 7(1), 1-21. PMCID: PMC10270667.

28. Bahrami M, Laurienti PJ, Shappell HM, **Simpson SL** (2022). Brain Network Analysis: A Review on Multivariate Analytical Methods. *Brain Connectivity* 13(2), 64-79. PMCID: PMC10024592.

29. Heinze G, Gregorich M, **Simpson SL** (2024). Flexible Parameterization of Graph-Theoretical Features from Individual-Specific Networks for Prediction. *Statistics In Medicine* 43(13), 2592-2606.

30. **(Invited Review) Simpson SL**, Shappell HM, Bahrami M (2024). Statistical Brain Network Analysis. *Annual Review of Statistics and Its Application* 11. PMCID: PMC11343573.

APPLICATIONS JOURNAL ARTICLES

31. Lark RK, Williams CL, Stadler D, **Simpson SL**, Henderson RC, Samson-Fang L, Worley G (2005). Serum Prealbumin and Albumin Concentrations Do Not Reflect Nutritional State in Children with Cerebral Palsy. *Journal of Pediatrics* 147, 695-697.

32. Thomas KB, **Simpson SL**, Tarver WL, Gwede CK (2010). Is Social Support From Family Associated with PSA Testing in a Sample of Men? An Exploratory Analysis Using The Health Information National Trends Survey (HINTS) 2005. *American Journal of Men's Health* 4, 50-59.

33. Slager RE, **Simpson SL,** LeVan TD, Poole JA, Sandler DP, Hoppin JA (2010). Rhinitis Associated with Pesticide Exposure Among Private Pesticide Applicators in the Agricultural Health Study. *Journal of Toxicology and Environmental Health, Part A* 73: 20, 1382-1393. PMCID: PMC2964833.

34. Telesford Q, Morgan AR, Hayasaka S, **Simpson SL**, Barret W, Kraft RA, Mozolic JL, Laurienti PJ (2010). Reproducibility of graph metrics in fMRI Networks. *Frontiers in Neuroinformatics* 4, 117. PMCID: PMC3002432.

35. Webb BC (MD/JD Student), **Simpson SL**, Hairston KG (2011). From Politics to Parity: Using a Health Disparities Index to Guide Legislative Efforts for Health Equity. *American Journal of Public Health* 101, 554-560. PMCID: PMC3036688.

36. Bruce MA, Beech BM, Crook ED, Sims M, Griffith DM, **Simpson SL**, Ard J, Norris KC (2013). Sex, Weight Status, and Chronic Kidney Disease Among African Americans: The Jackson Heart Study. *The Journal of Integrative Medicine* 61, 701-707. PMCID: PMC4862367.

37. Vaughan L, Leng I, Dagenbach D, Resnick SM, Rapp SR, Jennings JM, Brunner RL, **Simpson SL**, Beavers D, Coker LH, Gaussoin SA, Sink K, Espeland MA (2013). Intra-Individual Variability in Domain-Specific Cognition and Risk of MCI and Dementia. *Current Gerontology and Geriatrics Research*, Article ID 495793. PMCID: PMC3881440.

38. McCrory MC, Gower EW, **Simpson SL**, Nakagawa TA, Mou SS, Morris PE (2014). Off-Hours Admission to Pediatric Intensive Care and Mortality. *Pediatrics* 134, e1345-e1353.

39. Moussa MN, **Simpson SL**, Mayhugh RE, Grata ME, Burdette JH, Porrino LJ, Laurienti PJ (2015). Long-Term Moderate Alcohol Consumption Does Not Exacerbate Age-Related Cognitive Decline in Healthy, Community-Dwelling Older Adults. *Frontiers In Aging Neuroscience*, 6, 341. PMCID: PMC4283638.

40. Fetterhoff D, Opris I, **Simpson SL**, Deadwyler SA, Hampson RE, Kraft RA (2015). Multifractal Analysis of Information Processing in Hippocampal Neural Ensembles during Working Memory under Δ9-Tetrahydrocannabinol Administration. *Journal of Neuroscience Methods* 244, 136-153. PMCID: PMC4312266.

41. Stanley ML, **Simpson SL**, Dagenbach D, Lyday RG, Burdette JH, Laurienti PJ (2015). Changes in Brain Network Efficiency and Working Memory Performance in Aging. *PLoS One* 10(4), e0123950. PMCID: PMC4395305.

42. Paolini BM, Laurienti PJ, **Simpson SL**, Burdette JH, Lyday RG, Rejeski WJ (2015). Global Integration of the Hot-State Brain Network of Appetite Predicts Short Term Weight Loss in Older Adults. *Frontiers In Aging Neuroscience* 7, 70. PMCID: PMC4423432.

43. Mayhugh RE, Moussa MN, **Simpson SL**, Lyday RG, Burdette JH, Porrino LJ, Laurienti PJ (2016). Moderate-Heavy Alcohol Consumption Lifestyle in Older Adults is Associated with Altered Central Executive Network Community Structure during Cognitive Task. *PLoS One*, 11(8), e0160214. PMCID: PMC4975417.

44. Casanova R, Saldana S, **Simpson SL**, Lacy MB, Subauste AR, Blackshear C, Wagenknecht L, Bertoni AG (2016). Predictions of Incident Diabetes in the Jackson Heart Study Using High-Dimensional Machine Learning. *PLoS One* 11(10), e0163942.

45. Tegeler CH, Tegeler CL, Cook JF, Lee SW, Gerdes L, Shaltout HA, Miles CM, **Simpson SL** (2016). A Preliminary Study of the Effectiveness of an Allostatic, Closed-Loop, Acoustic Stimulation Neurotechnology in the Treatment of Athletes with Persisting Post-Concussion Symptoms. *Sports Medicine* 2(1), 39. PMCID: PMC5023638.

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47. Bahrami M (PhD Advisee), Laurienti PJ, Quandt SA, Talton J, Pope CN, Summers P, Burdette JH, Chen H, Liu J, Howard TD, Arcury TA, **Simpson SL** (2017). The Impacts of Pesticide and Nicotine Exposures on Latino Farmworkers' Functional Brain Networks. *Neurotoxicology* 62, 138-150. PMCID: PMC5654319.

48. McCrory MC, Spaeder MC, Gower EW, Nakagawa TA, **Simpson SL**, Coleman MA, Morris PE (2017). Time of Admission to the PICU and Mortality. *Peds Critical Care Medicine* 18(10), 915-923.

49. Tegeler CL, Gerdes L, Shaltout HA, Cook JF, **Simpson SL**, Lee SW, Tegeler CH (2017). Successful use of Closed-Loop Allostatic Neurotechnology by a Series of Service Members and Veterans with Posttraumatic Stress Symptoms: Self-Reported, and Autonomic Improvements. *Military Medical Research* 4(1), 38.

50. Mokhtari F, Rejeski WJ, Wu G, **Simpson SL**, Burdette JH, Laurienti PJ (2018). Dynamic fMRI Networks Predict Success in a Behavioral Weight Loss Program Among Older Adults. *NeuroImage* 173, 421-433. PMCID: PMC5911254.

51. Shaltout HA, Lee SW, Tegeler CL, Hirsch JR, **Simpson SL**, Gerdes L, Tegeler CH (2018). Improvements in Heart Rate Variability, Baroreflex Sensitivity, and Sleep After Use of Closed-Loop Allostatic Neurotechnology by a Heterogeneous Cohort. *Frontiers in Public Health* 6, 116. PMCID: PMC5996903.

52. Lee SW, Laurienti PJ, Burdette JH, Tegeler CL, Morgan AR, **Simpson SL**, Gerdes L, Tegeler CH (2019). Functional Brain Network Changes Following use of an Allostatic, Closed-Loop, Acoustic Stimulation Neurotechnology for Military-Related Traumatic Stress. *Journal of Neuroimaging* 29(1), 70-78. PMCID: PMC6586033.

53. Peterson H, **Simpson SL**, Laurienti PJ (2019). Wake Forest Alcohol Imagery Set (WFAIS): Development and Validation of a Large Standardized Alcohol Imagery Dataset. *Alcoholism: Clinical and Experimental Research* 43(12), 2559-2567. PMCID: PMC6904540.

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56. Garg RK, Khan J, Dawe R, Conners J, John S, Prabhakaran S, Kochet M, Bhabad S, **Simpson SL**, Ouyang B, Jhaveri M, Bleck T (2020). The Influence of Diffusion Weighted Imaging Lesions on Outcomes in Patients with Acute Spontaneous Intracerebral Hemorrhage. *Neurocritical Care* 33(2), 552-564. PMCID: PMC7875455.

57. Burdette JH, Laurienti PJ, Miron LL, Bahrami M, **Simpson SL**, Nicklas BJ, Fanning J, Rejeski WJ (2020). Functional Brain Networks: Unique Patterns with Hedonic Appetite and Confidence to Resist Eating in Older Adults with Obesity. *Obesity* 28(12), 2379-2388. PMCID: PMC7686067.

58. Tegeler CL, Shaltout HA, Lee SW, **Simpson SL**, Gerdes L, Tegeler CH (2020). High-Resolution, Relational, Resonance-Based, Electroencephalic Mirroring (HIRREM) Improves Symptoms and Autonomic Function for Insomnia: A Randomized, Placebo-Controlled Clinical Trial. *Brain and Behavior* 10(11), e01826. PMCID: PMC7667311.

59. Dagenbach D, Tegeler CH, Morgan AR, Lucas K, Laurienti PJ, **Simpson SL** (2021). Effects of an Allostatic Closed-Loop Acoustic Stimulation Neurotechnology (HIRREM^{TM}) on brain functional connectivity laterality in military-related traumatic stress. *Journal of Neuroimaging* 32(2), 287-296. PMCID: PMC8005452.

60. Peterson H, Mayhugh R, Bahrami M, Rejeski WF, **Simpson SL**, Heilman K, Porges SW, Laurienti PJ (2021). Influence of Heart Rate Variability on Abstinence-Related Changes in Brain State in Everyday Drinkers. *Brain Sciences* 11(6), 817. PMCID: PMC8235786.

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62. Bahrami M, **Simpson SL**, Burdette JH, Lyday RG, Quandt SA, Arcury TA, Laurienti PJ (2022). Altered Default Mode Network Associated with Pesticide Exposure in Latinx Children from Rural Farmworker Families. *NeuroImage* 256, 119179. PMCID: PMC9251855.
*__Top 10 Research Papers in 2022 Award, Division of Public Health Sciences, WFUSM__.

63. Rejeski WJ, Laurienti PJ, Bahrami M, **Simpson SL**, Fanning J, Burdette JH (2022). Aging and Neural Vulnerabilities in Overeating: A Conceptual Overview and Model to Guide Treatment. *Psychiatry and Clinical Neurosciences Reports* 1(3), e39. PMCID: PMC9797202.

64. Tegeler CL, Clary HM, Shaltout HA, **Simpson SL**, Gerdes L, Tegeler CH (2023). Cereset Research Standard Operating Procedures for Insomnia: A Randomized, Controlled Clinical Trial. *Global Advances in Health and Medicine* 12, 1-14. PMCID: PMC9933987.

65. Peterson-Sockwell H, Veach LJ, **Simpson SL**, Fanning J, Laurienti PJ, Gauvin L (2023). Desire and Craving Ratings Vary Significantly for Moderate to Heavy Alcohol Consumers: Differences in Behavioral Ratings and Brain Network Topology. *Alcoholism: Clinical and Experimental Research* 47(5), 893-907.

66. Laurienti PJ, Miller ME, Lyday RG, Boyd MC, Tanase A, Burdette JH, Hugenschmidt CE, Rejeski WJ, **Simpson SL**, Baker LD, Tomlinson CE, Kritchevsky SB (2023). Associations of Physical Function and Body Mass Index with Functional Brain Networks in Community-Dwelling Older Adults. *Neurobiology of Aging* 127, 43-53. PMCID: PMC10227726.

67. Khodaei M (PhD Advisee), Laurienti PJ, Dagenbach D, **Simpson SL** (2023). Brain Working Memory Network Indices as Landmarks of Intelligence. *Neuroimage: Reports* 3(2), 100165. PMCID: PMC10327823.

68. Khodaei M (PhD Advisee), Dobbins DL, Laurienti PJ, **Simpson SL**, Arcury TA, Quandt SA,

Burdette JH (2023). Neuroanatomical Differences in Latinx Children from Rural Farmworker Families and Urban Non-Farmworker Families and Related Associations with Pesticide Exposure. *Heliyon* 9(11). PMCID: PMC10656267.

69. Kirse HA, Bahrami M, Lyday RG, **Simpson SL**, Peterson-Sockwell H, Burdette JH, Laurienti PJ (2023). Differences in Brain Network Topology Based on Alcohol Use History in Adolescents. *Brain Sciences* 13(12), 1676. PMCID: PMC10741456.

70. Boyd MC, Burdette JH, Miller ME, Lyday RG, Hugenschmidt CE, Rejeski WF, **Simpson SL**, Baker LD, Tomlinson CE, Kritchevsky SB, Laurienti PJ (2024). Association of Physical Function with Connectivity in the Sensorimotor and Dorsal Attention Networks: Why Examining Specific Components of Physical Function Matters. *GeroScience* 46(5), 4987-5002. PMCID: PMC11336134.

Invited Publications (Editorially Reviewed)

1. **Simpson SL**, Burdette JH, Laurienti PJ (2015). The Brain Science Interface. *Significance (Magazine of the Royal Statistical Society)* 12(4), 34-39. PMCID: PMC4948029.

2. Telesford QK, **Simpson SL**, Kolaczyk ED (2015). Editorial: Complexity and Emergence in Brain Network Analyses. *Frontiers in Computational Neuroscience* 9, 65.

3. Bowman FD, **Simpson SL**, Drake DF (2016). Joint fMRI and DTI Models for Brain Connectivity. In H Ombao, M Lindquist, W Thompson, and J Aston (Eds.), *Handbook of Modern Statistical Methods: Neuroimaging Data Analysis*.

4. **Simpson SL** (2021). Mixed Modeling Frameworks for Analyzing Whole-Brain Network Data. In A Rasooly H Baker, and M Ossandon (Eds.), *Biomedical Engineering Technologies*: *Volume 1*, *Methods in Molecular Biology*, *vol. 2393*.

5. **Simpson SL** (2025+). Choosing the Approximate Test Statistic and Approximation. In KE Muller and DH Glueck (Eds.), *Power and Sample Size for Multilevel and Longitudinal Designs in Health Research*. Submitted.

Miscellaneous Publications

1. **Simpson SL**, Edwards LJ, Muller KE, Styner MA (2009). A Kronecker Product Linear Exponent AR(1) Family of Correlation Structures for Multivariate Repeated Measures Data. In *JSM Proceedings*, ENAR Section. Alexandria, VA: American Statistical Association, 1302-1316.

2. **Simpson SL**, Hayasaka S, Laurienti PJ (2010). Selecting an Exponential Random Graph Model for Complex Brain Networks. arXiv:1007.3230v1 [stat.AP].

3. **Simpson SL**, Zhu M, Muller KE (2017). A Note on Implementing a Special Case of the LEAR Covariance Model in Standard Software. arXiv:1707.08407v1 [stat.ME].

Manuscripts in Preparation

1. **(Invited Review in Inaugural Issue)** Lindquist MA, Caffo B, Kang J, **Simpson SL**, Pinto M, Ting C, Ombao H. Statistics, Data Science, and the Functional Connectome. *Statistics and Data Science in Imaging*, *Submitted*.

2. Khodaei M (PhD Advisee), Laurienti PJ, Simpson SL, Shappell HM. MIND-Map: A Comprehensive Toolbox for Estimating Brain Dynamic States. *Imaging Neurocience*,

Submitted.

3. Peterson-Sockwell H, Lyday RG, Tomlinson CE, **Simpson SL**, Weiner JL, Burdette JH, Laurienti PJ. The Triple Network and Beyond: Abstinence-Related Alterations in Functional Brain Network Community Structure During Alcohol Image Viewing. *Alcohol*, *Submitted*.
4. Peterson-Sockwell H, Lyday RG, Tomlinson CE, Rejeski WF, **Simpson SL**, Burdette JH, Laurienti PJ. Alterations in Functional Connectivity Within the Default Mode, Salience, and Motor Networks During Alcohol Cue Viewing Following Alcohol Abstinence. *Alcohol, Submitted*.
5. Peterson-Sockwell H, Tanase AD, Lyday RG, Heilman K, Porges SW, **Simpson SL**, Burdette JH, Rejeski WJ, Laurienti PJ. The Sober Salience Network: Exploring the Link Between Vagal Efficiency and Brain Network Topology During Alcohol Image Viewing Following Abstinence. *Frontiers in Integrative Neuroscience, Submitted.*
6. Spry KP, Burdette JH, Arcury TA, Quandt SA, **Simpson SL**, Laurienti PJ. Sex-related Differences in Brain Network Community Structure in Latinx Children. *Brain and Behavior, Submitted*.
7. McIntyre CC, Lyday RG, Su Y, Nicklas B, **Simpson SL**, Deep G, Macauley SL, Hugenschmidt CE. Insulin Resistance, Cognition, and Functional Brain Network Topology in Older Adults with Obesity. *Scientific Reports, Submitted.*

PRESENTATIONS AT PROFESSIONAL MEETINGS

(Advised Graduate Students Underlined)

1. Gribbin MJ, Johnson JL, **Simpson SL**, Muller KE (2005). Free Power Software for Repeated Measures, MANOVA, and Some Mixed Linear Models Using SAS/IML. *International Biometric Society ENAR Meeting*, Austin, TX (Poster).
2. **Simpson SL**, Muller KE, Coffey CS (2005). Repeated Measures Power for Gaussian Multivariate Linear Models: A Tutorial. *International Biometric Society ENAR Meeting*, Austin, TX (Poster).
3. Thomas KB, **Simpson SL**, Gwede CK (2007). Family Influence and Black Men's Prostate Cancer Screening Behaviors. *Health Information National Trends Survey (HINTS) Conference* (Poster).
4. **Simpson SL**, Edwards LJ, Muller KE, Sen PK (2008). Linear Models with a Generalized AR(1) Covariance Structure. *International Biometric Society ENAR Meeting*, Arlington, VA (Talk).
5. **Simpson SL**, Edwards LJ, Muller KE (2009). Kronecker Product Linear Exponent AR(1) Correlation Structures for Multivariate Repeated Measures. *International Biometric Society ENAR Meeting*, San Antonio, TX (Talk).
6. **Simpson SL**, Edwards LJ, Muller KE (2009). Kronecker Product Linear Exponent AR(1) Correlation Structures for Multivariate Repeated Measures. *Joint Statistical Meetings*, Washington, DC (Poster).
7. **Simpson SL**, Edwards LJ (2010). A Circular LEAR Correlation Structure for Cyclical Longitudinal Data. *International Biometric Society ENAR Meeting*, New Orleans, LA (Talk).
8. Espeland MA, Dagenbach D, Jennings JM, Brunner RL, Resnick SM, Beavers D, **Simpson SL**, Coker LH, Gaussoin SA, Sink K, and Rapp SR (2010). Variability in Domain-Specific

Cognitive Function and Incident Dementia: The Women's Health Initiative Study of Cognitive Aging. *Presented at the North Carolina Cognition Group Meeting*, Winston-Salem, NC (Talk).

9. **Simpson SL**, Hayasaka S, Laurienti PJ (2010). Exponential Random Graph Modeling for Complex Brain Networks. *Organization for Human Brain Mapping Meeting*, Barcelona, Spain (Poster).

10. Telesford Q, Hayasaka S, **Simpson SL**, Morgan AR, Laurienti PJ (2010). Reproducibility of Graph Metrics in the At-Rest fMRI Network. *Organization for Human Brain Mapping Meeting*, Barcelona, Spain (Poster).

11. Entrikin DW, Carr JJ, Taylor HA, **Simpson SL**, Fox ER, Terry JG (2010). Global LV Function by Cardiac MRI: Comparison of a Planimetric and Mathematical Model-Based Approach for Image Analysis in the Jackson Heart Study. *Jackson Heart Study Scientific Conference—Special Invitation*, Jackson, MS (Poster).

12. Carr JJ, **Simpson SL**, Terry JG, Gordy B, Liu J, Ding J, Harman JL, Hundley GW, Taylor HA (2010). Pericardial Adipose Tissue and Left Ventricular Dysfunction in African Americans: The Jackson Heart Study. *Jackson Heart Study Scientific Conference—Special Invitation*, Jackson, MS (Poster).

13. Carr JJ, **Simpson SL**, Terry JG, Sims M, Taylor HA (2010). Metabolic Syndrome and Diabetes are Associated with a High Prevalence of Subclinical Atherosclerosis in African Americans: The Jackson Heart Study. *Jackson Heart Study Scientific Conference—Special Invitation*, Jackson, MS (Poster).

14. Terry JG, **Simpson SL**, Carr JJ, Buxbaum SG, Sims M, Hundley G, Entrikin DW, Vitek TR, Taylor HA (2010). Association of Traditional Risk Factors and Coronary Artery Calcified Plaque with Regional Left Ventricular Function by Myocardial Tagging MRI in African Americans: The Jackson Heart Study. *Jackson Heart Study Scientific Conference—Special Invitation*, Jackson, MS (Poster).

15. Terry JG, **Simpson SL**, Carr JJ, Buxbaum SG, Sims M, Hundley G, Entrikin DW, Vitek TR, Taylor HA (2010). Association of Traditional Risk Factors and Coronary Artery Calcified Plaque with Regional Left Ventricular Function by Myocardial Tagging MRI in African Americans: The Jackson Heart Study. *Radiological Society of North America*, Chicago, IL (Talk).

16. **Simpson SL**, Hayasaka S, Laurienti PJ (2010). Exponential Random Graph Modeling for Complex Brain Networks. *International Biometric Conference*, Florianopolis, Brazil (Poster).

17. Carr JJ, **Simpson SL**, Terry JG, Gordy B, Liu J, Ding J, Harman JL, Hundley GW, Taylor HA (2011). Pericardial Adipose Tissue and Left Ventricular Dysfunction in African Americans: The Jackson Heart Study. *American Heart Association EPI/NPAM*, Atlanta, GA (Moderated Poster).

18. Carr JJ, **Simpson SL**, Terry JG, Sims M, Smith C, Taylor HA (2011). Metabolic Syndrome and Diabetes are Associated with a High Prevalence of Subclinical Atherosclerosis in African Americans: The Jackson Heart Study. *American Heart Association EPI/NPAM*, Atlanta, GA (Poster).

19. Terry JG, **Simpson SL**, Smith CL, Carr JJ, Hairston KG, Register TC, Ding J, North KE, Feitosa MF, Wojczynski MK, Borecki IB (2012). Race and Sex Influence the Associations of Subcutaneous and Visceral Adipose Tissues with Calcified Plaque of the Coronary and Abdominal Aortic Arteries: The Family Heart Study. *American Heart Association EPI/NPAM*, San Diego, CA (Talk).

20. Espeland MA, Dagenbach D, Jennings JM, Brunner RL, Resnick SM, Beavers D, **Simpson SL**, Coker LH, Gaussoin SA, Sink K, Rapp SR (2012). Relative Deficits in Domain-Specific Cognitive Function and Risk of Dementia. *Society for Behavioral Medicine*, New Orleans, LA.

21. Espeland MA, Dagenbach D, Jennings JM, Brunner RL, Resnick SM, Beavers D, **Simpson SL**, Coker LH, Gaussoin SA, Sink K, Rapp SR (2012). Relative Deficits in Domain-Specific Cognitive Function and Risk of Dementia. *Women's Health Initiative Investigator Meeting*, Washington, DC.

22. **Simpson SL**, Moussa MN, Laurienti PJ (2012). An Exponential Random Graph Modeling Approach to Creating Group-Based Representative Whole-Brain Connectivity Networks. *Organization for Human Brain Mapping Meeting*, Beijing, China (Poster).

23. **Simpson SL**, Edwards LJ, Muller KE (2012). Kronecker Product Linear Exponent AR(1) Correlation Structures and Separability Tests for Multivariate Repeated Measures Data. *International Biometric Conference*, Kobe, Japan (Talk)

24. Bruce MA, Whitt-Glover M, Beech BM, Griffith D, Sims M, **Simpson SL**, Ard J, Norris K (2012). Gender, Weight Status, and CKD Among African Americans: The Jackson Heart Study. *Obesity*, San Antonio, TX (Poster).

25. McGowin IV, Peiffer AM, Bourland JD, **Simpson SL**, Rawley JB, Godwin DW, Rowland JA (2013). MEG: Quantitative Comparison of Oscillations and Synchronization Differences/Similarities in Post-Surgery/Pre-Irradiation Patients and Control Subjects. *The American Association of Physicists in Medicine Meeting*, Indianapolis, IN (Poster).

26. McCrory MC, Gower EW, **Simpson SL**, Nakagawa TA, Mou SS, Morris PE (2014). Off-Hours Admission and Mortality in Pediatric Intensive Care. *Society of Critical Care Medicine (SCCM)*, San Francisco, CA (Poster).

27. Casanova R, Saldana S, **Simpson SL**, Lacy MB, Subauste AR, Blackshear C, Wagenknecht L, Bertoni A (2015). Prediction of Incident Diabetes in the Jackson Heart Study Cohort Using Random Forests. *American Diabetes Association (ADA)*, Boston, MA (Poster).

28. Bahrami M (PhD Advisee), Laurienti PJ, Sandberg JC, Daniel SS, Arcury TA, **Simpson SL** (2016). The Impact of Pesticides on Latino Farmworkers' Functional Brain Networks. *NIEHS Environmental Health Science FEST*, Research Triangle Park, NC (Poster).

29. Bahrami M (PhD Advisee), Laurienti PJ, Arcury TA, **Simpson SL** (2017). The Impacts of Pesticide and Nicotine on Functional Brain Networks in Latino Farmworkers. *North Carolina Cognition Group Conference*, University of North Carolina at Greensboro, Greensboro, NC (Poster).

30. Tegeler CL, Howard LJ, Schmidt KD, Cook JF, Kumar S, **Simpson SL**, Lee SW, Gerdes L, Tegeler CH (2017). Use of a Closed-Loop Acoustic Stimulation Neurotechnology Improves Symptoms of Moderate to Severe Insomnia: Results of a Placebo-Controlled Trial. *Sleep Meeting*, Boston, MA (Poster).

31. Bahrami M (PhD Advisee), Laurienti PJ, Arcury TA, **Simpson SL** (2017). Brain Networks in Latino Farmworkers with Chronic Exposures to Pesticides. *Biomedical Engineering Society (BMES) Meeting*, Phoenix, AZ (Poster).

32. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2018). A Matlab Toolbox for Multivariate Analysis of Brain Networks. *Statistical Methods in Imaging (SMI) Conference*, University of Pennsylvania, Philadelphia, PA.

33. Mayhugh R, Rejeski WJ, Bahrami M, **Simpson SL**, Heilman K, Porges S, Gauvin L, Laurienti PJ (2018). Relationship Between Functional Brain Connectivity and Cardiac Vagal Functioning in Moderate to Heavy Alcohol Consumers. *Research Society on Alcoholism Conference*, San Diego, CA (Poster).

34. **Simpson SL** (2018). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *International Biometric Conference*, Barcelona, Spain (Talk).

35. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2018). A Matlab Toolbox for Multivariate Analysis of Brain Networks. *Biomedical Engineering Society (BMES) Meeting*, Atlanta, GA (Poster).

36. Mokhtari F, Bouzan MA, **Simpson SL**, Laurienti PJ (2018). Optimizing Spectral Properties of Sliding Window Correlation Analysis for Dynamic Brain Connectivity During Rest. *Biomedical Engineering Society (BMES) Meeting*, Atlanta, GA (Talk).

37. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2019). Analyzing Local Subnetworks: Context is Everything. Satellite Conference: Network Neuroscience. *Network Science (NetSci) Meeting*, Burlington, VT (Poster).

38. Peterson H, Mayhugh R, Rejeski WJ, Bahrami M, **Simpson SL**, Heilman K, Porges SW, Laurienti PL (2019). Relationship Between Cardiac Vagal Tone and Functional Brain Connectivity in Moderate to Heavy Alcohol Consumers. Satellite Conference: Network Neuroscience. *Network Science (NetSci) Meeting*, Burlington, VT (Talk).

39. Peterson H, Bahrami M, **Simpson SL**, Rejeski WJ, Laurienti PJ (2020). Differential Functional Brain Network Topology During Periods of Normal Drinking and Abstinence in Moderate to Heavy Alcohol Consumers. *Accepted for presentation at the Research Society on Alcoholism Scientific Meeting, scheduled for June 2020 in New Orleans, LA; meeting canceled due to coronavirus pandemic*.

40. Tegeler C, Tegeler C, Howard L, Brown K, Kellar D, Asif-Fraz F, Gerdes L, **Simpson SL**, Shaltout H (2021). A Pilot, Placebo-controlled Trial of Closed-loop Acoustic Stimulation Neurotechnology for Insomnia (4298). *American Academy of Neurology (AAN) Meeting*, Virtual (Poster), Neurology Apr 2021, 96 (15 Supplement) 4298.

41. Peterson H, Laurienti PJ, **Simpson SL**, Rejeski WJ (2021). Heartbeat Counting is not Associated with Subjective Interoceptive Awareness or Autonomic Function in Daily Drinkers. *New England Science Symposium (NESS)*, Virtual (Poster).

42. Tomlinson CE (PhD Advisee), Laurienti PJ, Lyday RG, **Simpson SL** (2021). A Regression Framework for Brain Network Distance Metrics. *Statistical Methods in Imaging (SMI) Conference*, Virtual (Poster).

43. Tomlinson CE (PhD Advisee), Laurienti PJ, Lyday RG, **Simpson SL** (2021). A Regression Framework for Brain Network Distance Metrics. *Joint Statistical Meetings*, Virtual (Speed Session).

44. Peterson H, Veach LJ, **Simpson SL**, Fanning J, Laurienti PJ (2022). Differences in Semantic Interpretation of Desire and Craving in Healthy Alcohol Consumers. *Special Issue: 45th Annual Speaker & Poster Abstracts of the Research Society on Alcoholism, June 2022*: 46(S1), 70-286.

45. Peterson H, Lyday RG, Tomlinson CE, Rejeski WJ, **Simpson SL**, Burdette JH, Laurienti PJ (2022). Alterations in Functional Connectivity Within the Default Mode, Salience, and Motor Networks During Alcohol Cue Viewing Following Alcohol Abstinence. *Society for Neuroscience (SFN)*, San Diego, CA (Poster).

46. Khodaei M (PhD Advisee), Peterson-Sockwell H, Laurienti PJ, **Simpson SL**, Shappell HM (2023). Alteration in Brain Functional Network States Associated with Cravings for Alcohol in Abstaining Individuals. *Biomedical Engineering Society (BMES) Meeting*, Seattle, WA (Poster).

47. Khodaei M (PhD Advisee), **Simpson SL**, Shappell HM, Laurienti PJ (2024). Redefining Brain Network Comparison with a Novel Multiscale Distance Measure. *Society for Neuroscience (SFN)*, Chicago, IL (Poster)

48. Khodaei M (PhD Advisee), **Simpson SL**, Shappell HM, Laurienti PJ (2024). Redefining Brain Network Comparison with a Novel Multiscale Distance Measure. *Biomedical Engineering Society (BMES) Meeting*, Seattle, WA (Poster).

PRESENTATIONS AT OTHER VENUES (Advised Graduate Students Underlined)

1. **Simpson SL**, Muller KE, Ray S. (2006). Correlation as a Function of Distance for Discrete M-Rep Features. *Presented to the Medical Image Display and Analysis Group, Shape Statistics Meeting, University of North Carolina at Chapel Hill*.

2. **Simpson SL**, Muller KE, Jeong JY (2006). Tangent Variable Representation in M-Rep Analysis. *Presented to the Medical Image Display and Analysis Group, Shape Statistics Meeting, University of North Carolina at Chapel Hill*.

3. **Simpson SL** (2007). Medical Image Analysis. *Presented to the Royster Society of Fellows, University of North Carolina at Chapel Hill*.

4. **Simpson SL**, Edwards LJ, Muller KE, Sen PK, Styner MA (2008). Linear Models with a Generalized AR(1) Covariance Structure for Longitudinal And Spatial Data. *Presented to the Division of Biostatistics, Department of Epidemiology and Health Policy Research, University of Florida at Gainesville*.

   – *Department of Biostatistics, University of Alabama at Birmingham*.

   – *Department of Biostatistics, Bioinformatics, and Epidemiology, Medical University of South Carolina*.

   – *Department of Biostatistics and Bioinformatics, Duke University*.

   – *Department of Biostatistics, Virginia Commonwealth University*.

   – *Department of Biostatistics and Data Science, Wake Forest University School of Medicine.*

   – *Medical Image Display and Analysis Group, Shape Statistics Meeting, University of North Carolina at Chapel Hill*.

   – *Neuroimaging Research Group, Neuroimaging Seminar Series, University of North Carolina at Chapel Hill*.

   – *Advanced Neuroscience Imaging Research Laboratory, Wake Forest University School of Medicine*.

5. **Simpson SL** (2009). Exponential Random Graph Models. *Presented to the Laboratory for Complex Brain Networks, Wake Forest University*.

6. **Simpson SL** (2009). An Overview of the LEAR Correlation Model and its Adaptations for Within-Subject Covariance Modeling. *Presented to the Department of Biostatistics and Data Science, Wake Forest University School of Medicine*.

7. **Simpson SL** (2010). Whole-Brain Networks: A Brief Overview of Challenges and a Potential Solution. *Presented to the Division of Public Health Sciences, Wake Forest University School of Medicine*.

8. Telesford Q, Hayasaka S, **Simpson SL**, Morgan AR, Laurienti PJ (2010). Reproducibility of Graph Metrics in the At-Rest fMRI Network. *Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences Research Symposium*, Winston-Salem, NC.

9. **Simpson SL** (2010). Modeling Whole-Brain Networks: A Brief Overview of Challenges and Potential Solutions. *Presented to the Department of Biostatistics and Bioinformatics, Emory University*.

10. **Simpson SL** (2010). Modeling Whole-Brain Networks: A Brief Overview of Challenges and Potential Solutions. *Presented to the Department of Biostatistics and Data Science, Wake Forest University School of Medicine*.

11. Edwards LJ, **Simpson SL** (2011). Analysis of 24-Hour Ambulatory Blood Pressure Monitoring Data using Orthonormal Polynomials in the Linear Mixed Model. *Presented to the NC TraCS Institute's Biostatistics Core, University of North Carolina at Chapel Hill*.

12. **Simpson SL** (2011). Modeling Whole-Brain Networks: A Brief Overview of Challenges and Potential Solutions. *Presented to the Translational Research Academy (TRAc), Wake Forest University School of Medicine*.

13. **Simpson SL** (2014). Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain. *Presented to the Department of Biostatistics and Data Science, Wake Forest University School of Medicine*.

14. Bahrami M (PhD Advisee), Laurienti PJ, Arcury TA, **Simpson SL** (2016). A Mixed-Effects Modeling Approach to Study the Impact of Pesticides on Farmworkers' Brain Networks Using R-fMRI Data. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.

15. Bahrami M (PhD Advisee), Laurienti PJ, Arcury TA, **Simpson SL** (2017). The Impacts of Pesticide and Nicotine on Functional Brain Networks in Latino Farmworkers. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.

16. **Simpson SL** (2018). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented to the Department of Biostatistics and Data Science, Wake Forest University School of Medicine*.

17. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2018). A Matlab Toolbox for Multivariate Analysis of Brain Networks. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.

18. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2018). A Matlab Toolbox for Multivariate Analysis of Brain Networks. *Carolina Networks Research Group (NRG)*, University of North Carolina at Chapel Hill, Chapel Hill, NC.

19. Singleton O, Bahrami M, Lyday R, Rowland JA, Rogers E, Dobbins DL, **Simpson SL**, Godwin DW (2018). Graph Theoretical Analysis of Brain Networks in Traumatic Brain Injury in OIF/OEF Veterans. *Neuroscience Research Day*, Wake Forest University School of Medicine, Winston-Salem, NC.

20. Bahrami M (PhD Advisee), Laurienti PJ, **Simpson SL** (2019). Analysis of Brain Subnetworks Within the Context of Their Whole-Brain Networks. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.
21. Khodaei M (PhD Advisee), Laurienti PJ, **Simpson SL**, Arcury TA, Burdette JH (2020). White Matter Decline in Latinx Children from Farmworker Families. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.
22. Khodaei M (PhD Advisee), Laurienti PJ, **Simpson SL** (2021). Brain Resting State Network Indices as Landmarks of Intelligence. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.
23. Khodaei M (PhD Advisee), Laurienti PJ, **Simpson SL** (2022). Individual Brain Fingerprinting Using Functional and Structural Networks. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.
24. Peterson-Sockwell H, Lyday RG, Tomlinson C, Rejeski WJ, **Simpson SL**, Burdette JH, Laurienti PJ (2023). Alterations in Functional Connectivity within the Default Mode, Salience, and Motor Networks During Alcohol Cue Viewing Following Alcohol Abstinence. *Wake Forest Biomedical Graduate Programs Research Day*, Wake Forest University School of Medicine, Winston-Salem, NC.
25. Kirse H, Lyday RG, **Simpson SL**, Bahrami M, Laurienti PJ (2023). Topological Differences in Addiction-Associated Brain Networks with Heavy Alcohol Consumption in Adolescence. *Wake Forest Biomedical Graduate Programs Research Day*, Wake Forest University School of Medicine, Winston-Salem, NC.
26. Khodaei M (PhD Advisee), Laurienti PJ, Dagenbach D, **Simpson SL** (2023). Brain Working Memory Network Indices as Landmarks of Intelligence. *Wake Forest Biomedical Graduate Programs Research Day*, Wake Forest University School of Medicine, Winston-Salem, NC.
27. Khodaei M (PhD Advisee), Peterson-Sockwell H, Laurienti PJ, **Simpson SL**, Shappell HM (2023). Alteration in Brain Functional Network States Associated with Cravings for Alcohol in Abstaining Individuals. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.
28. Khodaei M (PhD Advisee), **Simpson SL**, Shappell HM, Laurienti PJ (2024). Redefining Brain Network Comparison with a Novel Multiscale Distance Measure. *School of Biomedical Engineering and Science (SBES) Symposium*, Wake Forest University School of Medicine, Winston-Salem, NC.

INVITED EXTRAMURAL PRESENTATIONS AND SEMINARS

(Advised Graduate Students Underlined)

1. **Simpson SL** (2011). Modeling Whole-Brain Networks: A Brief Overview of Challenges and Potential Solutions. *Presented to the Department of Biostatistics and Bioinformatics, University of Colorado at Denver*.
2. **Simpson SL** (2012). Modeling Complex Functional Brain Networks: A Brief Overview of Challenges and Potential Solutions. Invited Session: Statistical Issues in Modeling fMRI Data. *Joint Statistical Meetings*, San Diego, CA.

3. **Simpson SL** (2012). Keynote Speaker. Diversity Mentor Lunch (DML) Series for the NIH Sponsored Initiative for Maximizing Student Diversity (IMSD) Program. *University of North Carolina at Chapel Hill*.

4. **Simpson SL** (2013). Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain. *Presented to the Department of Biostatistics, University of North Carolina at Chapel Hill.*

5. **Simpson SL** (2013). Analyzing Resting-State fMRI Brain Networks: Fusing Statistics and Network Science to Understand the Brain. (Invited Talk) Topic-Contributed Session: Challenges and Statistical Approaches of Resting-State fMRI. *Joint Statistical Meetings*, Montreal, Canada.

6. Edwards LJ, **Simpson SL** (2013). Analysis of 24-Hour Ambulatory Blood Pressure Monitoring Data using Orthonormal Polynomials in the Linear Mixed Model. *Presented to the Department of Epidemiology and Population Health, Albert Einstein College of Medicine*.

7. **Simpson SL** (2013). Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain. *Presented to the Department of Biostatistics and Epidemiology, University of Pennsylvania*.

8. **Simpson SL** (2014). Analyzing fMRI Whole-Brain Networks: Fusing Statistics and Network Science to Understand the Brain. Late Breaking Invited Session: Statistical Science and the President's Brain Initiative. *Joint Statistical Meetings*, Boston, MA.

9. **Simpson SL** (2014). A Two-Part Mixed-Effects Modeling Framework for Analyzing Whole-Brain Network Data. (Invited Talk) Topic-Contributed Session: The Graphical Modelling and Longitudinal Analysis of fMRI Data. *Joint Statistical Meetings*, Boston, MA.

10. **Simpson SL** (2015). A Two-Part Mixed-Effects Modeling Framework for Analyzing Whole-Brain Network Data. *Presented to the Department of Biostatistics, Columbia University*.

11. **Simpson SL**, Laurienti PJ (2015). Disentangling Brain Graphs: The Conflation of Network and Connectivity Analyses. (Invited Talk) Topic-Contributed Session: Statistical Methods for Improved Processing and Analysis of fMRI Data. *Joint Statistical Meetings*, Seattle, WA.

12. **Simpson SL** (2015). Webinar Speaker. Massachusetts Institute of Technology (MIT) Online Science Technology, and Engineering Community (MOSTEC).

13. **Simpson SL**, Laurienti PJ (2016). Disentangling Brain Graphs: The Conflation of Network and Connectivity Analyses. Invited Talk Session: Inference for Brain Networks. *International Biometric Society ENAR Meeting*, Austin, TX.

14. **Simpson SL**, Laurienti PJ (2016). Disentangling Brain Graphs: The Conflation of Network and Connectivity Analyses. *Statistical and Applied Mathematical Sciences Institute (SAMSI)-Program on Challenges in Computational Neuroscience (CCNS)*, Structural Connectivity Working Group. Webinar.

15. **Simpson SL**, Laurienti PJ (2016). Disentangling Brain Graphs: The Conflation of Network and Connectivity Analyses. *Statistical and Applied Mathematical Sciences Institute (SAMSI)-Program on Challenges in Computational Neuroscience (CCNS)*, Transition Workshop. Durham, NC.

16. **Simpson SL**, Laurienti PJ (2016). Disentangling Brain Graphs: The Conflation of Network and Connectivity Analyses. Invited Satellite Symposium: Brain Networks (2nd Edition). *Network Science (NetSci) Meeting*, Seoul, South Korea.

17. Bahrami M (PhD Advisee), **Simpson SL**, Arcury TA, Laurienti PJ (2016). A Mixed-Effects Modeling Approach to Study the Impact of Pesticides on Farmworkers' Brain Networks Using RS-FMRI Data. Invited E-Poster Session: The Extraordinary Power of Data. *Joint Statistical Meetings,* Chicago, IL.

18. **Simpson SL** (2016). Distinguished Alumni Speaker. 6th Annual Initiative for Maximizing Student Diversity (IMSD) Research Symposium. *University of North Carolina at Chapel Hill*.

19. **Simpson SL** (2016). Webinar Speaker. Massachusetts Institute of Technology (MIT) Online Science Technology, and Engineering Community (MOSTEC).

20. **Simpson SL** (2017). Multivariate Modeling and Inference for Brain Networks: ERGMs and Mixed Models. Invited Educational Workshop: Taking Connectivity to a Skeptical Future: Challenges, Tools and Techniques. *Organization for Human Brain Mapping Meeting,* Vancouver, Canada.

21. **Simpson SL** (2017). Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain. *Presented to the Mathematics and Statistics Club, Department of Mathematics, Winston-Salem State University*.

22. **Simpson SL** (2018). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented to the Department of Biostatistics, Johns Hopkins University*.

23. **Simpson SL** (2018). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented to the Department of Biostatistics, University of Alabama at Birmingham.*

24. **Simpson SL** (2018). Analyzing Complex Functional Brain Networks: Fusing Statistics and Network Science to Understand the Brain. *Presented at the 2018 Division of Public Health Sciences Research Symposium, Wake Forest University School of Medicine*.

25. **Simpson SL** (2018). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented to the Department of Biostatistics, University of North Carolina at Chapel Hill*.

26. **Simpson SL** (2019). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented to the Yale Neuroimaging Seminar Series, Yale University*.

27. **Simpson SL** (2019). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented at the Department of Psychology's Seminar on Analysis and Measurement (SAM), Wake Forest University.*

28. **Simpson SL** (2020). A Mixed Modeling Framework for Analyzing Multitask Whole-Brain Network Data. *Presented to the Biostatistics Division, Albert Einstein College of Medicine*.

29. **Simpson SL** (2020). Mixed Modeling Methods for Whole-Brain Network Data. Invited Talk Session: Statistics in Neuroscience. *International Conference of the European Consortium for Informatics and Mathematics Working Group on Computational and Methodological Statistics (CMStatistics)*, London, England.

30. **Simpson SL** (2021). Mixed Modeling Frameworks for Analyzing Whole-Brain Network Data. *Presented to the Department of Biostatistics and Informatics, University of Colorado*.

31. **Simpson SL** (2021). Mixed Modeling Methods for Whole-Brain Network Data. Invited Talk Session: Statistical Approaches to Addressing Challenges in Neuroimaging Research. *Statistical Methods in Imaging Conference (SMI)*, Virtual.

32. **Simpson SL**, Bahrami M, Tomlinson CE, Laurienti PJ (2022). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science to Understand Brain Function. IMS Invited Session: New Data Science Advances in Imaging. *International Biometric Society ENAR Meeting*, Houston, TX.

33. **Simpson SL**, Bahrami M, Tomlinson CE, Laurienti PJ (2022). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science to Understand Brain Function. Invited Talk Session: Recent Advances in Statistical Models for Biomedical Data with Complex Structures. *International Conference on Econometrics and Statistics (EcoSta)*, Ryukoku University, Kyoto, Japan.

34. **Simpson SL**, Bahrami M, Tomlinson CE, Laurienti PJ (2022). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science to Understand Brain Function. Invited Talk Session: Novel Statistical Methods for Statistically Challenging Data (CO047). *International Conference on Computational Statistics (COMPSTAT)*, Bologna, Italy

35. **Simpson SL**, Bahrami M, Tomlinson CE, Laurienti PJ (2022). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science to Understand Brain Function. Invited Talk Session: Modern Models and Computational Methods for Today's Complex Data. *International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC 2022)*, University of North Carolina at Greensboro.

36. **Simpson SL**, Bahrami M, Tomlinson CE, Laurienti PJ (2022). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science to Understand Brain Function. *Presented at the Biomedical Data Science Seminar Series, Hosted by the Penn Statistics in Imaging and Visualization Endeavor (PennSIVE) Lab, University of Pennsylvania*.

37. **Simpson SL** (2023). Invited Session: Collaborating in Team Science: Negotiating Personalities, Mentoring New Researchers, and Oh How Do I Get Promoted? *International Biometric Society ENAR Meeting*, Nashville, TN.

38. **Simpson SL** (2023). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science To Understand Brain Function. *Presented to the Department of Statistical Sciences, Wake Forest University*.

39. **Simpson SL** (2023). Regression Frameworks for Brain Network Distance Metrics. Invited Talk Session: Statistical Models for Complex Brain Imaging Data. *International Conference on Econometrics and Statistics (EcoSta)*, Waseda University, Tokyo, Japan.

40. **Simpson SL** (2023). Regression Frameworks for Brain Network Distance Metrics. (Invited Talk) Topic-Contributed Session: Synergizing Emerging Methods for High-dimensional Genomics and Imaging Data. *Joint Statistical Meetings (JSM)*, Toronto, Canada.

41. **Simpson SL** (2023). Analytical Tools for Whole-Brain Networks: Fusing Statistics and Network Science To Understand Brain Function. *American Society of Functional Neuroradiology (ASFNR)*, Boston, MA.

42. **Simpson SL** (2023). Regression Frameworks for Brain Network Distance Metrics. Invited Talk Session: Statistics in Neuroscience. *International Conference of the European Consortium for Informatics and Mathematics Working Group on Computational and Methodological Statistics (CMStatistics)*, Berlin, Germany.

43. **Simpson SL** (2024). Regression Frameworks for Brain Network Distance Metrics. *Presented to the Department of Biostatistics, Vanderbilt University*.

44. **Simpson SL** (2024). Regression Frameworks for Brain Network Distance Metrics. Invited Talk Session: Graph-Based Network Connectomes Analysis. *Statistical Methods in Imaging Conference (SMI)*, Indianapolis, IN.

45. **Simpson SL** (2024). Statistical Brain Network Analysis: Recent Developments and Future Directions. *Institute for Mathematical and Statistical Innovation (IMSI)-Workshop on Challenges in Neuroimaging Data Analysis*. Chicago, IL.

46. **Simpson SL** (2025). Statistical Brain Network Analysis: Recent Developments and Future Directions. *Presented to the Department of Biomedical Engineering, Vanderbilt University*.

47. **Simpson SL** (2025). Statistical Brain Network Analysis: Recent Developments and Future Directions. Invited Talk Session: Dense Data: Methods and Applications. *Data Science, Statistics, and Visualisation (DSSV)*, Kruger Park, South Africa.

DIDACTIC/SYSTEMATIC INSTRUCTION

University of North Carolina-Chapel Hill, Department of Biostatistics
Teaching Assistant, Survival and Categorical Data Analysis
2004

University of North Carolina-Chapel Hill, Graduate School
Co-Instructor, Biostatistics Short Course for biomedical graduate students and post-docs
2007

Wake Forest University School of Medicine, Medical School
Standardized Patient Assessment Exam Evaluator (5.4 hours)
2009
Jackson Heart Study Scientific Conference
Co-Instructor, Imaging Analysis Workshop
2010

Wake Forest University School of Medicine, Medical School
Standardized Patient Assessment Exam Evaluator (8.6 hours)
2010

Wake Forest University School of Medicine, Clinical and Population Translational Science Program
Course Director/Instructor, CPTS 732: Applied Linear Models (4.0 hours)
2012
Wake Forest University School of Medicine, Medical School
Faculty Evaluator, PREP Program Journal Club
2012

Wake Forest University School of Medicine, Biomedical Engineering Program
Course Co-Director/Co-Instructor, BMES 7085: Nonlinear Dynamics – Directed Study
2013

Wake Forest University School of Medicine, Biomedical Engineering Program
Course Co-Director/Co-Instructor, BMES 3304: Multifractal Analysis of Time Series Data – Directed Study
2014

Wake Forest University Graduate School of Arts and Sciences
Founding Co-Director, Biomedical Informatics Program
2014-2018

Wake Forest University School of Medicine, Translational and Health System Science Program
Course Co-Director/Co-Instructor, THSS 740: Scientific Writing for Research Papers and Proposals (2.0 hours)
2024

Wake Forest University School of Medicine, Translational and Health System Science Program
Course Co-Director/Co-Instructor, THSS 741: Research Grant Preparation (1.0 hours)
2024

MENTORING RELATIONSHIPS

Graduate Students

2008-2009	Bryant Cameron Webb MD Student Topic: Using a Health Disparities Index to Evaluate the Efficacy of Minority Health Legislation Maya Angelou Center for Health Equity, Wake Forest University School of Medicine
2010-2013	Karen Joyce Dissertation Committee Member PhD student, Biomedical Engineering, Wake Forest Graduate School of Arts and Sciences
2012-2014	Michael McCrory Thesis Committee Member CPTS Student, Wake Forest Graduate School of Arts and Sciences
2012-2015	Brielle Paolini (Chair) Dissertation Committee MD/PhD Student, Neuroscience, Wake Forest Graduate School of Arts and Sciences
2012-2016	Satria Sajuthi Dissertation Committee Member PhD Student, Molecular Genetics and Genomics, Wake Forest Graduate School of Arts and Sciences

2013-2014	Pelbreton Balfour Thesis Committee Member CPTS Student, Wake Forest Graduate School of Arts and Sciences
2014-2015	Malaak Moussa Dissertation Committee PhD Student, Neuroscience, Wake Forest Graduate School of Arts and Sciences
2014-2018	Rhiannon Mayhugh (Chair) Dissertation Committee PhD Student, Neuroscience, Wake Forest Graduate School of Arts and Sciences
2015-2019	Mohsen Bahrami Advisor (Co-Advisor: Paul Laurienti) PhD Student, Biomedical Engineering, Wake Forest Graduate School of Arts and Sciences
2016-2018	Fatemeh Mokhtari Dissertation Committee PhD Student, Biomedical Engineering, Wake Forest Graduate School of Arts and Sciences
2016-2017	Abdullahi Oseni Thesis Committee Member CPTS Student, Wake Forest Graduate School of Arts and Sciences
2016	Katelyn McNab Summer Internship Supervisor/Advisor MS Student, Mathematics and Statistics Wake Forest Graduate School of Arts and Sciences
2017-2019	Omar Singleton Thesis Committee Chair MS Student, Health Disparities in Neuroscience-Related Disorders Wake Forest Graduate School of Arts and Sciences
2019	Hope Peterson Research Rotation Faculty Advisor PhD Student, Neuroscience, Wake Forest Graduate School of Arts and Sciences
2019-2022	Chalmer Tomlinson Advisor (Co-Advisor: Hongtu Zhu) PhD Student, Biostatistics, UNC-Chapel Hill Gillings School of Global Public Health
2019-2023	Hope Peterson Dissertation Committee Chair PhD Student, Neuroscience, Wake Forest Graduate School of Arts and Sciences

2020-Present Mohammad Reza Khodaei
Advisor (Co-Advisor: Paul Laurienti)
PhD Student, Biomedical Engineering,
Wake Forest Graduate School of Arts and Sciences

2023-Present Haley Kirse
Dissertation Committee Chair
PhD Student, Neuroscience, Wake Forest Graduate School of Arts and Sciences

Postdoctoral Fellows

2020-2021 Mohsen Bahrami, PhD
Postdoctoral Advisor
Postdoctoral Research Fellow, Wake Forest University School of Medicine

2020-2022 Nequesha Mohammed, MD
Postdoctoral Mentor (via the Kennedy Hopkins Scholars Mentor Program)
Postdoctoral Research Fellow (Orthopedics), Wake Forest University School of Medicine

Faculty

2019-Present Joseph Rigdon, PhD, Assistant Professor
Faculty Mentoring Committee Member, PHS-Biostatistics and Data Science

2020-Present Heather Shappell, PhD, Assistant Professor
Faculty Mentoring Committee Chair, PHS-Biostatistics and Data Science

2021-Present Hannah Ainsworth, PhD, Assistant Professor
Faculty Mentoring Committee Member, PHS-Biostatistics and Data Science

2022-Present Halley Alexander, MD, Assistant Professor, Neurology (K12 Scholar)
K12 Core Faculty Mentor

2023-2024 Mohsen Bahrami, PhD, Assistant Professor, Radiology (K12 Scholar)
K12 Core Faculty Mentor

2023-2028 Heather Shappell, PhD, Assistant Professor
NIH K25 Co-Mentor, PHS-Biostatistics and Data Science

2023-Present Roger Zoh, PhD, Associate Professor, Biostatistics, Indiana University

COMMUNITY ACTIVITIES AND SERVICE

2000-2002 Dearborn Middle School Tutoring/Mentoring Program
Boston, MA

2006-2008 Orange Correctional Community Volunteer
Hillsborough, NC

2012	Cook Elementary School Science Fair Mentor
2013-2014	EquityRX, Inc. Health Disparities Index Leadership Team
2014-2015	Senior Academy Drop-Out Prevention Mentor, Winston-Salem Chamber of Commerce and Winston-Salem/Forsyth County Schools
2019-Present	RiverRun International Film Festival Board of Directors Member
2020-2022	RiverRun International Film Festival Executive Committee (Secretary)
2022-Present	RiverRun International Film Festival Executive Committee (Treasurer)