

James Henderson

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Research Statement

My research involves developing statistical methods for estimating and reconstructing biological networks using high-throughput genomic, proteomic and metabolomic data and using the developed methods for understanding the functioning of biological processes and their association with disease onset and progression. I am particularly interested in methods based in ideas from dynamic systems and in understanding techniques for parameter estimation and model selection in such systems.

Education

2010 - 2015, University of Michigan

PhD Candidate in Statistics, 2013-Present

Cleared qualifying review exams in Applied Statistics (May, 2011) and Theoretical Statistics (May, 2012). Advanced to candidacy after presenting a preliminary thesis proposal title 'Reconstructing Biological Networks using Differential Equation Models' (January, 2013).

PhD pre-candidate in Statistics, 2010-2012

Coursework: Applied Statistics and Data Analysis, Analysis of Multivariate Data, Stat Inference, Large Sample Theory, Stochastic Models, Probability Theory, Optimization Methods in Statistics, Numerical Methods in Statistics, Time Series Analysis, Probability and Distribution Theory, Biostatistical Inference
Student Seminar Coordinator 2011-2012

2006 - 2009, American University

MA in Secondary Education

Alliance for Quality Urban Education (AQUE) Cohort

Coursework included: Classroom Management, Curriculum Design and Instruction, Educational Psychology, Methods in Secondary Education: Mathematics, Uses of Technology in Education

2001 - 2006, Michigan State University

BS in Mathematics

BA in Russian Language and Culture

Honors College

Alumni Distinguished Scholar, Quarter-Finalist

Coursework: Abstract Algebra, Analysis, Computer Science and Engineering, Differential Equations, Error Correcting Codes, Probability, Philosophy (several courses; cognate), Pseudo-Random Sequences, Russian, ...

Work Experience	<p>2010 - Present, University of Michigan <i>Rackham Outstanding GSI Award, 2014</i> University-wide teaching award, one of twenty annual recipients.</p> <p><i>Graduate Student Instructor, 2013</i> Stats 485, Capstone Seminar for Statistics majors satisfying the upper-level writing requirement; Primarily responsible for providing feedback on drafts and grading writing assignments; Worked with a diverse group of writers to improve the content, organization, style and presentation of their writing.</p> <p>Math/Stats 425, Introduction to Probability. Primary responsibilities were grading, office hours, and preparing detailed solutions to exercises.</p> <p><i>Graduate Student Research Assistant, 2012-2013</i> Working on computational approaches for reconstructing gene and metabolic networks from time series data with Professor George Michailidis.</p> <p><i>Graduate Student Instructor, 2010-2012</i> <i>GSI Excellence in Teaching Award, 2011</i> <i>GSI Excellence in Teaching Award, 2012</i> <i>Head GSI, 2011-2012</i></p> <p>Stats 250, Introduction to Statistics and Data Analysis. Responsible for both in-class teaching and out of class office hours; Teaching included: helping students learn SPSS, reviewing important concepts from lecture as well as teaching additional concepts, grading and providing feedback on homework; Course-wide collaboration on: video lessons regarding SPSS and video and written solutions to homework and exam problems.</p> <p><i>Participant in the MELO project.</i> MELO is a cross-disciplinary collaboration for integrating and improving the use of technology and novel learning objects in undergraduate education. Assisted in developing 'Name that Scenario' a quiz game helping students learn to choose appropriate statistical procedures based on context.</p>
	<p>2006-2009, DC Public Schools (Washington, DC) <i>Mathematics Teacher</i> <i>Teach For America (2006-2008)</i></p> <p>I taught seventh and eighth grade mathematics at Jefferson Middle School also coaching chess (through Chess Challenge, DC) and soccer (through DC Scores) while there. Additional training and support provided by TFA.</p> <p>2002-2005, MSU Residence Halls Association (East Lansing, MI) <i>Director of Campus Center Cinemas</i></p> <p>Managed approximately 10 employees and \$80,000+ annual budget as director of campus film program</p>
Publications	<p>'Network Reconstruction using Nonparametric Additive ODE Models' James Henderson, George Michailidis. <i>PLoS One, April 2014.</i></p> <p>'Association Between Impaired Cardiovascular Autonomic Function and Hypoglycemia in Patients With Type 1 Diabetes' Mamta Jaiswal, Katherine McKeon, Nicholas Comment, James Henderson, Scott Swanson, Cynthia Plunkett, Patrick Nelson, and Rodica Pop-Busui. <i>Diabetes Care, June 2014</i></p>
Additional Skills	<ul style="list-style-type: none"> • Strong interpersonal skills • Reading and speaking competency in Russian • Experienced educator able to explain complex ideas in simple language • Working knowledge in several statistical/programming environments, including R, C, MATLAB, SPSS, Mathematica, Python.