

Matthew Miller

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EDUCATION

PhD Statistics (ongoing)

NC State University
August 2016-present

Master of Statistics

NC State University
May 2018

M.A. Teaching with Mathematics Concentration

Duke University
June 2014

B.A. Mathematics

St. Mary's College of Maryland
Magna Cum Laude
May 2011

RESEARCH AND COLLABORATION

Dissertation Research

Fall 2017 - Present

NC State University, Raleigh, NC

Advisor Brian Reich

Using Bayesian modeling and data reduction techniques to study measurement error and spectral methods in spatial data. Forming interdisciplinary collaborations and applying our methods in materials science and forestry. Currently focusing on causal inference in spatial point process models.

Consulting Work with the EPA

Spring 2018

at NC State University, Raleigh, NC

Advisors Ana-Marie Staicu and Emily Griffith

Collaborators Marschall Furman and Emily Moan

Created a spatiotemporal statistical model with two other graduate students that uses Gaussian Processes to improve particulate matter concentration predictions based on the EPA's CMAQ climate model. Produced an 18 page report and presented the work to our EPA clients.

Teaching Statistical Thinking Coursera Course

Summer 2014

Duke University, Durham, NC

Course Creators Dalene Stangl and Kate Allman

Helped design pedagogy videos for teachers to integrate what they learn in the course into their lessons. This included writing scripts, creating classroom activities, and filming videos.

NIST Summer Undergraduate Research Fellowship

Summer 2009

NIST Materials Science and Engineering Laboratory, Gaithersburg, MD

Advisors Christopher Stafford and John Howarter

Researched viscoelastic properties of polymer thin films exposed to solvent vapor. Evaporated a 50 nm coat of aluminum on 250 nm spin-coated layers of polystyrene

films of various molecular weights. Wrinkling occurred after exposing films to toluene vapor, and was measured over time using microscopy and laser scattering. Inputted wrinkle wavelength into differential equation to determine elastic modulus of the polystyrene. Learned basic LabView techniques and ImageJ.

NASA Internship

Summer 2007

NASA Goddard Space Flight Center Optics Branch, Greenbelt, MD

Advisor Ron Shiri

Designed programs using MATLAB to time parallel processor performance (through Star-P Supercomputing) on decomposing and recomposing images. This work was for the James Webb Space Telescope.

PUBLICATIONS

1. **MJ Miller**, MJ Cabral, EC Dickey, JM LeBeau, and BJ Reich. "Accounting for Location Measurement Error in Atomic Resolution Images of Crystalline Materials," *in review*.

PROFESSIONAL EXPERIENCE

Research Assistant

August 2019-Present

NC State University, Raleigh, NC

Use deep learning and extreme value analysis techniques to predict materials with desirable properties. Collaborate with materials science researchers at Carnegie Mellon University.

Contracted Statistical Consultant

August 2019

Huckberry, San Francisco, CA

Short-term consulting job. Analyzed results from A/B test, wrote report with findings and made recommendations.

Teaching Assistant

August 2016-May 2017

NC State University, Raleigh, NC

Held office hours to assist students with homework and online quizzes. Graded SAS lab assignments and helped grade exams. TA'd for Introduction to Statistics, Experimental Statistics For Biological Sciences II, and Statistics For Management and Social Sciences II

Secondary Mathematics Teacher

August 2013-June 2016

Durham Public Schools, Durham, NC

Taught high school mathematics in a high-needs public school in Durham, NC. Long-term substitute and student teacher during the 2013-2014 school year. M-Level Licensed teacher from August 2014 to present. Classes taught include Common Core Math 1 and 3, which contain statistics components, AP Calculus BC, Honors Precalculus, and Introductory Mathematics.

Senior Defined Benefit Specialist

September 2012-August 2013

Fidelity Investments, Cary and Durham, NC

Calculation and employee resolution associate in Fidelity's Benefit Plan Services group. Fidelity is hired by large client companies for whom Fidelity manages pension plans. As a calculation associate, performed various pension calculations for pension plan participants, their beneficiaries, and alternate payees. As an employee resolution associate, communicated with plan participants to explain details of their pensions and updated Fidelity's systems with new information. Promoted after ten months.

Tutor

July 2011-June 2012

C2 Education, Olney and Germantown, MD

Taught mathematics, reading and writing to grade school students (K-12). Most students tutored were high school math students needing assistance in both coursework and SAT mathematics. These subjects included on-level and honors versions of Algebra 1, Geometry, Algebra 2, Precalculus, Statistics, Chemistry, as well as honors, AP, and community college Calculus and Biology. Tutoring sessions were two hour sessions in a 3-on-1, and sometimes 4-on-1 setting, where each student studied a different subject.

Teaching Assistant

January 2010-May 2011

St. Mary's College of Maryland Department of Mathematics, St. Mary's City, MD

Supervised and assisted during class group work, and held review sessions and office hours outside of class. Graded homework and quizzes. TA'd for Calculus II, Calculus III, and Foundations of Higher Mathematics.

COMPUTER SKILLS

R (advanced)

SAS (some knowledge)

L^AT_EX

MATLAB (proficient)

C++ (some knowledge)

Git

CONFERENCES AND WORKSHOPS

UNCG Regional Mathematics and Statistics Conference, November 2019 (Presentation Abstract Accepted)

NISS Ingram Olkin Statistics Serving Society Form: Gun Violence, The Statistical Issues, June 2019 (Received Funding to Attend)

STATMOS Workshop on Spatial and Spatio-temporal Statistical Extreme Value Analysis and Oceanography (Received Funding to Attend), May 2019

AAAS CASE Science Policy and Advocacy Workshop, March 2019 (Sponsored by the American Statistical Association)

ASA Conference on Statistical Practice, February 2019 (Short Course: Big Data, Data Science, and Deep Learning for Statisticians)

NCSSM TCM Conference, January 2016

MAA PREP Workshop: Teaching Mathematical Modeling, July 2015

Noyce National Conference, June 2014 (Presented Poster: *Teaching High School Freshmen about Surveys and Missing Data*)

SE Regional Noyce Scholars Conference, March 2014 (Presented Poster)

MAA Mid-Atlantic Sectional Meeting, Spring 2010 and Spring 2011

HONORS AND AWARDS

Data-Enabled Science and Engineering of Atomic Structure Fellowship

National Science Foundation, \$34,000 per year plus tuition and fees for 2 years

US-Australia International Research Experience for Students

National Science Foundation, \$8200 stipend for flight, accommodation, and per diem

Teacher of the Month

Riverside High School, Durham, NC

Robert Noyce Teaching Fellowship

National Science Foundation, \$15,000 plus tuition and fees

Durham Teaching Fellowship

Duke University

Mathematics Service Prize

St. Marys College of Maryland Mathematics Foundation

PROFESSIONAL GROUPS

American Statistical Association (member)