

Miranda Tilton

Curriculum Vitae

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Education

2017

Master of Science in Statistics, Iowa State University.

- Expected May 2019
- Honors: Presidential Scholarship of Graduate Excellence

2013–2017

Bachelor of Arts, St. Olaf College.

- Major: Psychology and Mathematics, Minor: Gender Studies and Statistics
- Magna Cum Laude

Research Experience

2017

Graduate Research Assistant, Center for Statistics and Applications in Forensic Evidence, Iowa State University.

- Developed convolutional neural network for identification of class characteristics of shoe soles
- Assisted with the creation of test items for preliminary study of how the presence of graphics affects assessment of facts presented

2015
2016

Undergraduate Research Fellow, Center for Interdisciplinary Research, St. Olaf College.

- Invoked circular and spatial statistics to investigate neural randomness in head-direction cells of anesthetized rats
- Consulted for faculty and students from non-statistical disciplines on research design and data analysis

Summer 2015

Undergraduate Researcher, Collaborative Undergraduate Research and Inquiry Program, St. Olaf College.

- Improved the use of K-12 student assessment data in the Northfield Public School District
- Created a Shiny Application to improve visualization of student progress for teachers and district administrators

Professional Experience

Summer 2016

Business Optimization Intern, Ameriprise Financial, Minneapolis, MN.

- Forecasted call volumes and metrics for call center and optimized business practices by conducting analyses to improve allocation of resources
- Updated call center staffing model assumptions that related call metrics by transforming skewed data and conducting linear regression

Teaching Experience

2014

Private Tutor.

Tutored high school, undergraduate, and non-Statistics graduate students in introductory mathematical and statistical concepts and course material.

Fall 2016

Research Methods for Psychology, *St. Olaf College, Department of Psychology, Northfield, MN.*

Worked collaboratively with Dr. Chuck Huff to develop course syllabus, shape lecture content, write assessments, and facilitate lab activities. Developed students' critical thinking and writing skills by giving verbal and written feedback on research design and written assignments.

Research Interests

STATISTICAL GRAPHICS AND VISUALIZATION

- Visual Inference
- Human Perception
- Interactive Graphics
- Graphics for “Big” Data

DATA SCIENCE

- Machine Learning
- Pattern Recognition

Skills

Expertise R/RStudio, Shiny, Markdown, \LaTeX , C/C++, Git/Github

Familiarity Python, SQL, SAS, SPSS, Bash, Mathematica

Posters and Presentations

2019

Automatic Identification of Footwear Class Characteristics.

Poster at the American Academy of Forensic Sciences annual meeting

2018

Automatic Identification of Footwear Class Characteristics.

Poster at Forensics@NIST

2018

CoNNOR: Convolutional Neural Network for Outsole Recognition.

Presentation to Graphics Group at Iowa State University Dept. of Statistics

2016

Randomness of Head Direction Cells in Rats Under Anesthesia.

Poster at the National Conference on Undergraduate Research

Theses

MS Creative Component (In Progress)

Title *CoNNOR: Convolutional Neural Network for Outsole Recognition*

Committee Dr. Susan VanderPlas (Co-Chair), Dr. Danica Ommen (Co-Chair), Dr. Kris DeBra-banter