

# Andrew Sage

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## EDUCATION

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**Iowa State University**, Ames, Iowa

**Degree:** Ph.D. in Statistics Expected Spring 2018

**Dissertation Topic:** Random forest robustness and variable importance

**Advisors:** Ulrike Genschel, Dan Nettleton

**Iowa State University**, Ames, Iowa

**Degree:** M.S. in Statistics, 2015

**Master's Project:** *Predicting Student Retention in STEM:  
A Random Forest Based Approach*

**Advisor:** Dan Nettleton

**Miami University**, Oxford, Ohio

**Degree:** M.S. in Mathematics, 2013

**Master's Project:** *Calculation of Cell Bounds for  
Contingency Tables from Rounded Conditional Frequencies*

**Advisor:** Stephen Wright

**The College of Wooster**, Wooster, Ohio,

**Degree:** B.A. in Mathematics 2007

*Summa Cum Laude*

## TEACHING/MENTORING EXPERIENCE

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**Iowa State University**, Ames, Iowa

Graduate teaching assistant, Department of Statistics

Courses taught as instructor:

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|---|--------------|
| ▪ Stat 231: probability and statistics for engineering      | S2017, F2017 |
| ▪ Stat 330: probability and statistics for computer science | F2016        |
| ▪ Stat 104: introductory statistics                         | F2014        |

Other teaching/mentoring at Iowa State University

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| • Graduate mentor for Freshman Honors Project by<br>Cameron Stocker with faculty advisor Dan Nettleton | S2017 |
| • Lab instructor for survey sampling techniques  | S2014 |

**Miami University**, Oxford, Ohio

Graduate teaching assistant, Department of Mathematics

Courses taught as instructor:

- Math 151: calculus I S2013
- Math 123: precalculus (taught 3 times) 2011-2012

**Bloomfield High School**, North Bloomfield, Ohio

High school mathematics teacher

2007-2011

**Ashtabula County Joint Vocational School**, Jefferson, Ohio

High school mathematics summer school teacher

2007-2008

**RESEARCH EXPERIENCE**

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**Iowa State University**, Ames, Iowa

Research assistant, Department of Statistics

2015-present

Advisor: Ulrike Genschel

- Developed a predictive model to identify undergraduate students at risk of dropping out of STEM majors

**Iowa State University**, Ames, Iowa

Research assistant, Center for Survey Statistics and Methodology

2013

Advisor: Cindy Yu

- Investigated temporal design for National Resource Inventory rangeland longitudinal study

**College of Wooster**, Wooster, Ohio

Undergraduate Applied Mathematics Research Experience

2006

Advisor: John Ramsay

- Wrote computer program to project completion times for tire tests at The Goodyear Tire and Rubber Company

**AWARDS/RECOGNITION**

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- Jebe Fellowship, Iowa State University 2013
- Effective Graduate Teaching Award, Dept. of Mathematics, Miami Univ. 2013
- SIAM Graduate Student Award, Dept. of Mathematics, Miami Univ. 2013
- William H. Wilson Prize in Mathematics, College of Wooster 2007
- William Edgar Hoffman Jr. Prize in Education, College of Wooster 2007
- Whitney E. Stoneburner Prize in Education, College of Wooster 2007

## PUBLICATIONS

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Sage, A. J., & Wright, S. E. (2016). Obtaining cell counts for contingency tables from rounded conditional frequencies. *European Journal of Operational Research*, 250(1), 91-100.

## SUBMITTED WORKS

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Sage, A. J., Genschel, U., Nettleton, D. (2017). Tree Aggregation for Random Forest Class Probability Estimation. (under review).

## PRESENTATIONS

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### ***“A Robust Residual Based Approach to Random Forest Regression”***

Joint Statistical Meetings, Baltimore MD, contributed talk, August 3, 2017

### ***“Random Forest Variable Importance”***

Research Talk for Dordt College Statistical Genetics and Biostatistics Summer Research group visit to Iowa State University, Ames IA, June 29, 2017

### ***“Impact of Working with Real Data on Perceptions of the Importance of Statistical Inference”***

Reviewed Poster, United States Conference on Teaching Statistics, State College PA, May 19, 2017

### ***“Retention of Students in STEM: An Early Alert Project”***

Iowa State Advising Summit, April 28, 2017

### ***“A Walk Through a Random Forest”***

Invited Talk, Dordt College, Sioux Center, IA, March 23, 2017

### ***“A Walk Through a Random Forest”***

Invited Talk, College of Wooster, Wooster OH, December 2, 2016

### ***“Predicting Student Retention in STEM Majors”***

Joint Statistical Meetings, Seattle WA, contributed talk, August 10, 2015

### ***“Predicting Student Retention in STEM: A Random Forest Based Approach”***

Masters project defense, Iowa State University, March 27, 2015

### ***“Adaptive Survey Design”***

Survey Working Group, Iowa State University, March 14, 2014

### ***“The Factoring Likelihood Approach for Maximum Likelihood Estimation in Cases of Missing Data”***

Survey Working Group, Iowa State University, November 20, 2013

***“The Effect of Rounding on Disclosure in Contingency Tables”***

ASA Iowa Chapter Conference, Ames IA, poster presentation, November 1, 2013

***“Calculation of Cell Bounds for Contingency Tables with Rounded Conditional Frequencies”***

Masters project defense, Miami University, June 28, 2013

**PROFESSIONAL ACTIVITIES/ASSOCIATIONS**

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- Phi Beta Kappa
- American Statistical Association
- Preparing Future Faculty Associate, Iowa State University
- Project LEARN (Learning Enhancement Action / Resource Network) Working Group, Iowa State University