

Andrew J. Sage

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COLLEGE FACULTY POSITIONS

Lawrence University, Appleton, WI

Assistant Professor of Statistics

2018-present

EDUCATION

Iowa State University, Ames, IA

Degree: Ph.D. in Statistics

2018

Dissertation Title: *Random forest robustness, variable importance
and tree aggregation*

Advisors: Ulrike Genschel, Dan Nettleton

Iowa State University, Ames, IA

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, OH

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, OH

Degree: B.A. in Mathematics

2007

Summa Cum Laude

TEACHING EXPERIENCE

(Term & Year)

Lawrence University, Appleton, WI

Assistant professor of statistics

- STAT 107: Principles of Statistics F18, W19, S19, F19, S20, S21, S23
- STAT 255: Statistics for Data Science F20, S21, F21, F22
- CMSC/STAT 205: Data-Scientific Programming W20, W21, W22, W23
- STAT 455: Advanced Statistical Modeling W21, W22, W23

- MATH 340: Probability (previously MATH 240) F18, F22
- STAT 450: Bayesian Statistics S20
- MATH 430: Statistical Modeling W19
- FRST 100: First-Year Studies F19, F20
- Advised 20 Chandler Senior Experience projects,
and unofficially co-advised 3 others

Iowa State University, Ames, IA

Graduate teaching assistant, Department of Statistics

Courses taught as instructor:

- STAT 231: Probability and Statistics for Engineering S17, F18, S18
- STAT 330: Probability and Statistics for Computer Science F16
- STAT 104: Introductory Statistics F14
- Lab instructor for STAT 421 Survey Sampling Techniques S14

Miami University, Oxford, OH

Graduate teaching assistant, Department of Mathematics

Courses taught as instructor:

- Math 151: Calculus I S13
- Math 123: Precalculus F11, S12, F12

Bloomfield High School, North Bloomfield, OH

2007-11

High school mathematics teacher

Ashtabula County Joint Vocational School, Jefferson, OH

2007-08

High school mathematics summer school teacher

PEER-REVIEWED PUBLICATIONS

[6] Sage, A. J., Liu⁺, Y., & Sato⁺, J. (2022). From Black Box to Shining Spotlight: Using Random Forest Prediction Intervals to Illuminate the Impact of Assumptions in Linear Regression. *The American Statistician*, 76(4), 414-429.

[5] Smith, J. G., Sage, A. J., McGlenn⁺, M., Robbins, J., & Garmon, S. L. (2022). Is Sexual Racism Still Really Racism? Revisiting Callander et al.(2015) in the USA. *Archives of Sexual Behavior*, 51(6), 3049-3062.

[4] Sage, A.J., Genschel, U., Nettleton, D. (2021). A Residual-Based Approach to Robust Random Forest Regression. *Statistics and its Interface*. 14(4), 389-402.

[3] Sage, A. J., Cervato, C., Genschel, U., & Ogilvie, C. A. (2021 (accepted 2018)). Combining academics and social engagement: A major-specific early alert method to counter student attrition in science, technology, engineering, and mathematics. *Journal of College Student Retention: Research, Theory & Practice*, 22(4), 611-626.

[2] Sage, A.J., Genschel, U., Nettleton, D. (2020). Tree aggregation for random forest class probability estimation. *Statistical Analysis and Data Mining: The ASA Data Science Journal*. 13(2), 134-150.

[1] 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.

+ denotes undergraduate student author advised by A.J. Sage

MANUSCRIPT IN PROGRESS

Hilt, L.M., Vachhani, S.S., Vaghasia, N., Swords, C.M, and Sage, A.J. (2023). Brief App-based Mindfulness and Mood Monitoring Intervention for First-Year College Students: A Randomized Controlled Trial. Manuscript in preparation.

UNDERGRADUATE RESEARCH MENTORED

Undergraduate research publication co-advised (with Jonathan Lhost):

- Brickley, D. (2022). The Effect of Academic Performance on Athletic Success in Collegiate Athletic Programs. SIAM Undergraduate Research Online, DOI: 10.1137/22S1491216

Lawrence University Summer Research Fellows

- Nina Austria (2022)
- Nafis Ahmed Nunim (2022)
- Maggie McGlenn (2020) – co-advised with Jesus Smith
- Johanna Kopecky (2019)
- Katherine Liu (2019)
- Joe Sato (2019)

SERVICE

- Lawrence University Committees
 - Curriculum Committee (2022-23)
 - First-Year Studies Committee, (2020-21 & 2021-22)
 - Internal Review Board, (2019-20)
- Phi Beta Kappa Lawrence University Delta-Gamma Chapter
 - President (2022-23 & 2023-24)
 - Vice President (2020-21 & 2021-22)
- Reviewer for articles in
 - *The American Statistician* (2023)
 - *AIMS Mathematics* (2022)
 - *PLOS One* (2021)
 - *Numeracy* (2019)
 - *SIAM Undergraduate Research Online* (2018)

- Judge for Undergraduate Statistics Project Competition (USPROC), Fall 2018, Spring 2019, Spring 2020
- Provide statistical consulting for faculty and study research projects at Lawrence (consulting log available upon request)

GRANTS RECEIVED

Sage, A.J. (primary investigator), Del Toro, I., Oesper, L. Weinman, J. Exploring solutions for high performance computing at ACM institutions, Associated Colleges of the Midwest Faculty Career Enhancement grant, awarded 2019

Donohoue, D., Singer, G., Armstrong, C., Burdick-Shepherd, Colon, S., S., Jenike, M., , Miller, B., Sage, A.J., Skran, S. Mapping a Course to Institutionalize Community-Based Learning at Lawrence, Associated Colleges of the Midwest grant, awarded 2023

AWARDS/ SCHOLARLY ACHIEVEMENTS

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| • Graduate Student Teaching Award, Department of Statistics, Iowa State University | 2018 |
| • Effective Graduate Teaching Award, Department of Mathematics, Miami University | 2013 |
| • SIAM Graduate Student Award, Department of Mathematics, Miami University | 2013 |
| • Phi Beta Kappa, Inducted at College of Wooster | 2006 |

PRESENTATIONS AND WORKSHOPS CONDUCTED

“From Black Box to Shining Spotlight: Using Random Forest Prediction Intervals to Illuminate the Impact of Assumptions in Linear Regression”

Reviewed Poster, US Conference on Teaching Statistics, State College PA, June 2, 2023

“Exploring solutions for high performance computing at ACM institutions”

Organized and facilitated virtual workshop attended by 27 ACM faculty and staff, June 21-23, 2021

“A Robust Residual Based Approach to Random Forest Regression”

Contributed poster, Conference on Predictive Inference and its Applications, Ames IA, May 7, 2018

“A Robust Residual Based Approach to Random Forest Regression”

Contributed speed talk and poster, Joint Statistical Meetings, Baltimore MD, 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, US 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

“Predicting Student Retention in STEM Majors”

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

CONFERENCES / PROFESSIONAL DEVELOPMENT

- US Conference on Teaching Statistics, State College PA, June 1-3, 2023
- Joint Statistical Meetings, Washington DC, August 6-11, 2022
- US Conference on Teaching Statistics Regional Meeting, Ames IA, May 25, 2022
- High Performance Computing Mindshare, Swarthmore PA, January 7-8, 2020
- Joint Statistical Meetings, Denver, CO, 2019
- US Conference on Teaching Statistics, State College PA, 2019
- Inclusive Excellence in the Sciences Retreat, Lawrence University, February 8-9, 2019
- Preparing to Teach Workshop, Vancouver, British Columbia, July 28, 2018
- Conference on Predictive Inference and its Applications, Ames IA, 2018
- Preparing Future Faculty Fellow, Iowa State University, 2016-18
- Team-Based Learning Workshop, Center for Excellence in Learning & Teaching, Iowa State University, Spring 2018
- Project LEA/RN Beginners Learning Group, Iowa State University, 2017-18

- Project LEA/RN Workshop, Iowa State University, May 9-10, 2017
- Joint Statistical Meetings, Baltimore, MD, 2017
- US Conference on Teaching Statistics, State College PA, 2017
- Joint Statistical Meetings, Seattle WA, 2015
- American Statistical Association Member