Byran J. Smucker

CONTACT INFORMATION	Public Health Sciences, Division of Biostatistics Henry Ford Health One Ford Place, Suite 3C Detroit, MI 48202	*Phone:* 313.874.6360 *Fax:* 313.874.6730 *E-mail:* smuckerb@miamioh.edu *Website:* Professional webpage

CITIZENSHIP USA

RESEARCH INTERESTS Supporting and studying the design and analysis of experiments, including screening designs, optimal design, and response surface methods; applied predictive modeling; applied optimization

APPOINTMENTS

Henry Ford Health, Detroit, MI USA

Senior Scientist, Division of Biostatistics	**August 2024 to present**

Miami University, Oxford, OH USA

Professor of Statistics	**July 2024 to August 2024**

Miami University, Oxford, OH USA

Associate Professor of Statistics	**July 2016 to July 2024**

Center for Visual Sciences at Miami University

Member	**October 2019 to present**

Sattler College, Boston, MA USA

Adjunct Professor (non-resident)	**August 2018 to December 2021**

Miami University, Oxford, OH USA

Assistant Professor of Statistics	**August 2010 to June 2016**

The Pennsylvania State University, State College, PA USA

Research Assistant, Statistical Consulting Center	**August 2007 to July 2009**
Instructor	**Summer 2006, 2007**
Teaching Assistant	**2005-2006, 2006-2007 academic years**

EDUCATION **The Pennsylvania State University**, State College, PA USA

Ph.D., Statistics and Operations Research, August 2010
- Dissertation Topic: Model-Robust and Multiresponse Experimental Design
- Advisor: Enrique del Castillo
- Committee Chair: James Rosenberger

M.S., Statistics and Operations Research, December 2007
- Thesis Topic: Calculating Cell Bounds in Contingency Tables Based on Conditional Frequencies

- Advisor: Aleksandra Slavković
- Area of Study: Statistical Disclosure Limitation

Oregon State University, Corvallis, OR USA

B.S., Industrial Engineering, March 2005

- *Summa cum Laude*

Smucker, B.J., Wright, S.E., Williams[3], I., Page, R.C., Kiss, A.J., Silwal, S.B., Weese, M., and Edwards, D.E. (2024+). Large Row-Constrained Supersaturated Designs for High-throughput Screening. Submitted.

Cui[1], M., Qi[2], K., Smucker, B., and Sundaramoorthi, D. A Multi-Objective Capacity-Constrained Optimization of Corn Planting Scheduling. Rejected.

Stallrich, J.W., Young, K., Weese, M.L., Smucker, B.J., and Edwards, D.J. An optimal design framework for lasso sign recovery. arXiv preprint. In revision.

Akubire Abugre[3], J. and Smucker, B.J. A Comparison of Supersaturated Designs and Orthogonal Arrays. Resubmitted.

Perez-Estrada, J.R., Tangeman, J., Proto-Newton, M., Sanaka, H., Smucker, B., and Del Rio-Tsonis, K. (2024). Metabolic States Influence Chicken Retinal Pigment Epithelium Cell Fate Decisions. *Development*, 151(15).

Young, K., Weese, M.L., Stallrich, J.W., Smucker, B.J., and Edwards, D.E. (2024) A Graphical Comparison of Screening Designs using Support Recovery Probabilities. *Journal of Quality Technology*, 56(4), 355-368.

Tsissios, G., Sallese, A., Perez-Estrada, J.R., Tangeman, J.A., Chen, W., Smucker, B., Ratvasky, S.C., Grajales-Esquivel, E., Martinez, A., Visser, K.J., Araus, A.J., Wang, H., Simon, A., Yun, M.H., Del Rio-Tsonis, K. (2024) Macrophages modulate fibrosis during newt lens regeneration. *Stem Cell Research & Therapy* 15, 141.

Smucker, B.J., Stevens, N.T., Asscher, J., and Goos, P. (2023). Profiles in the Teaching of Experimental Design and Analysis. *Journal of Statistics and Data Science Education*, 31(3):211-224.

Tsissios, G., Theodoroudis-Rapp, G., Chen, W., Sallese, A., Smucker, B., Ernst, L., Chen, J., Xu, Y., Ratvasky, S., Wang, H., and Del Rio-Tsonis, K. (2023). Characterizing the lens regeneration process in *Pleurodeles waltl*. *Differentiation*, 132:15-23.

Tangeman, J.A., Perez-Estrada, J.R., Van Zeeland, E., Liu, L., Danciutiu, A., Grajales-Esquivel, E., Smucker, B., Lian, C., and Del Rio-Tsonis, K. (2022). A stage-specific OTX2 regulatory network and maturation-associated gene programs are inherent barriers to RPE neural competency. *Frontiers in Cell and Developmental Biology, section Molecular and Cellular Pathology*, 10.3389/fcell.2022.875155.

Zhang, J., Kong, Y., Bailer, A.J., Zhu, Z., and Smucker, B.J. (2022). Incorporating Historical Data when Determining Sample Size Requirements for Aquatic Toxicity

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[1]former STA undergraduate student
[2]STA graduate student

Experiments. *Journal of Agricultural, Biological, and Environmental Statistics*, 27:544-561.

Snyder[3], M. and Smucker, B.J. (2022). Metamodel Optimization of a Complex, Rural-Urban Emergency Medical Services System. *Simulation Modelling Practice and Theory*, 148, 10.1016/j.simpat.2022.102526.

Weese, M.L., Stallrich, J.W., Smucker, B.J., and Edwards, D.J. (2021). Strategies for Supersaturated Screening: Group Orthogonal and Var(s+) Designs. *Technometrics*, 63:4, 443-455, DOI: 10.1080/00401706.2020.1850529.

Chen, W., Tsissios, G., Sallese, A., Smucker, B., Nguyen, A.-T., Chen, J., Wang, H., and Del Rio-Tsonis, K. (2021). In vivo imaging of newt lens regeneration: Novel insights into the regeneration process. *Translational Vision Science & Technology*, 10:10, DOI: https://doi.org/10.1167/tvst.10.10.4.

Smucker, B.J., Edwards, D.J., and Weese, M.L. (2021). Response Surface Models: To Reduce or Not to Reduce?, *Journal of Quality Technology*, 53:2, 197-216, DOI: 10.1080/00224065.2019.1705208.

Kristoffersen[4], P. and Smucker, B.J. (2020). Model-robust design of mixture experiments. *Quality Engineering*. 32(4):663-675.

Yousefi, A.M., Smucker, B.J., Naber, A.J., Wyrick, C.S., Shaw, C.H., Bennett, K., Szekely, S.E., and Focke, C.A. (2018). Controlling the extrudate swell in melt extrusion additive manufacturing of 3D scaffolds: a designed experiment. *Journal of Biomaterials Science, Polymer Edition*. 29(3):195-216.

Weese, M.L., Edwards, D.J., and Smucker, B.J. (2017). A Criterion for Constructing Powerful Supersaturated Designs when Effect Directions are Known. *Journal of Quality Technology*. 49(3):265-277.

Smucker, B.J., Jensen, W., Wu[3], Z., and Wang[3], B. (2017). Robustness of Classical and Optimal Designs to Missing Observations. *Computational Statistics & Data Analysis*. 113:251-260.

Ockuly[3], R., Weese, M.L., Smucker, B.J., Edwards, D.J, and Chang[5], L. (2017). Response Surface Experiments: A Meta-Analysis. *Chemometrics and Intelligent Laboratory Systems*. 164:64-75.

Uth, N., Mueller, J., Smucker, B., and Yousefi, A.-M. (2017). Validation of Scaffold Design Optimization in Bone Tissue Engineering: Finite Element Modeling versus Designed Experiments. *Biofabrication*. 9(1).

Cao, Y., Smucker, B.J., and Robinson, T.J. (2017). A Hybrid Elitist Pareto-based Coordinate Exchange Algorithm for Constructing Multi-Criterion Optimal Experimental Designs. *Statistics & Computing*. 27, 423-437.

Smucker, B.J. and Bailer, A.J. (2015). Beyond Normal: Preparing Undergraduates for the Work Force in a Statistical Consulting Capstone. *The American Statistician*.

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[3]STA graduate student, advisee
[4]Non-STA graduate student, advisee
[5]STA undergraduate student

69(4):300-306.

Zhang[3], X., Smucker, B.J., and Woffington, J. (2015). Statistics and Show Business: Shakespeare Meets Predictive Analytics. *Chance.* 28.2:4-12.

Smucker, B.J. and Drew[3], N.M. (2015). Approximate Model Spaces for Model-Robust Experimental Design. *Technometrics.* 57(1):54-63.

Cao, Y., Smucker, B.J., and Robinson, T.J. (2015). On Using the Hypervolume Indicator to Compare Pareto Fronts: Applications to Multi-Criteria Optimal Experimental Design. *Journal of Statistical Planning & Inference.* 160:60–74.

Weese, M.L., Smucker, B.J., and Edwards, D.J. (2015). Searching for Powerful Supersaturated Designs. *Journal of Quality Technology.* 47(1):66–84.

Keane, B., Parsons, S., Smucker, B.J., and Solomon, N.G. (2014). Length polymorphism at the *avpr1a* locus is correlated with male reproductive behavior in a natural population of prairie voles (Microtus ochrogaster). *Behavioral Ecology and Sociobiology.* 68(12):1951–1964.

Webb[3], J., Smucker, B.J., and Bailer, A.J. (2014). Selecting the best design for nonstandard toxicology experiments. *Environmental Toxicology and Chemistry.* 33(10):2399–2406.

Wright, S.E. and Smucker, B.J. (2014). Rapid calculation of exact cell bounds for contingency tables from conditional frequencies. *Computers and Operations Research.* 52:113–122.

Wright, S.E. and Smucker, B.J. (2014). An Intuitive Formulation and Solution of the Exact Cell-Bounding Problem for Contingency Tables of Conditional Frequencies. *Journal of Privacy and Confidentiality.* 5(2):133–156.

Smucker, B.J., del Castillo, E., and Rosenberger, J.L. (2012). Model-Robust Two-Level Designs Using Coordinate Exchange Algorithms and a Maximin Criterion. *Technometrics.* 54(4):367–375.

Smucker, B.J., del Castillo, E., and Rosenberger, J.L. (2012). Model-Robust Designs for Split Plot Experiments. *Computational Statistics and Data Analysis.* 56(12):4111–4121.

Smucker, B.J., Slavković, A., and Zhu, X. (2012). Cell Bounds in k-way Tables Given Conditional Frequencies. *Journal of Official Statistics.* 28(1):121–140.

Smucker, B.J., del Castillo, E., and Rosenberger, J. L. (2011). Exchange Algorithms for Constructing Model-Robust Experimental Designs. *Journal of Quality Technology*, 43(1):28–42.

Smucker, B.J., Lorantas, R.M., and Rosenberger, J. L. (2010). Correcting Bias Introduced by Aerial Counts in Angler Effort Estimation. *North American Journal of Fisheries Management*, 30(4):1051–1061.

Logendran, R., McDonell, B., and Smucker, B. (2007). Scheduling unrelated parallel machines with sequence-dependent setups. *Computers and Operations Research*, 34(11):3420–3438.

PEER-REVIEWED CONFERENCE PROCEEDINGS OR PRESENTATIONS	Liu, C. and Smucker, B.J. (2020). Leveraging Methods for Subsampling: Towards a Realistic Evaluation. Presented at *Symposium on Statistics & Data Science*, Pittsburgh, June 3-6. Peer-reviewed abstract.

Yousefi, A.-M., Szekely, S., Shaw, C., Reichenbach, K., Naber, A., Janney, C., Focke, C., Smucker, B. (2015). Modulating the Porosity and Modulus of Tissue Engineering Scaffolds in Fused Deposition Modeling. Proceedings of *SEP-ANTEC* Conference, Orlando, FL, March 23–25.

Smucker, B. and Slavković, A. B. (2008). Cell bounds in two-way contingency tables based on conditional frequencies. In Domingo-Ferrer, J. and Saygin, Y., editors, *Privacy in Statistical Databases 2008 Lecture Notes in Computer Science*, volume 5262, pages 64–76. Springer-Verlag, Berlin Heidelberg.

INVITED COLUMNS AND DISCUSSIONS

Smucker, B., Krzywinski, M., and Altman, N. (2019). Points of Significance: Two-level factorial experiments. *Nature Methods*, 16:211-212.

Smucker, B., Krzywinski, M., and Altman, N. (2018). Points of Significance: Optimal experimental design. *Nature Methods*, 15(8):559-560.

Smucker, B.J. (2012). Discussion of "Optimum design of experiments for statistical inference" by Gilmour and Trinca. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*. 61(3):345–401.

INVITED PRESENTATIONS/PANELS

Panelist for Invited Session "Innovative Experimental Design Education: Active Learning, Data Science, and Computer-Generated Designs", Joint Statistical Meetings, Washington D.C. August 2022.

"The State of Supersaturated Design and Analysis", Quality and Productivity Research Conference, San Francisco State University. June 2022 (virtual).

"Response Surface Models: To Reduce or Not to Reduce?", Quality and Productivity Research Conference. July 2021 (virtual).

"Meta-Model Optimization of Simulated EMS Systems: A Case of Statistical Engineering", World Statistics Conference. July 2021 (virtual).

"Experimental design ideas in data science: an overview." Joint Statistical Meetings (virtual conference). August 2020.

"An Introduction to Split-Plot Experiments with Application to Bone Tissue Engineering." American Chemical Society Central Regional Meeting, Midland, MI. June 2019.

"Model-Robust Mixture Designs." Spring Research Conference, Blacksburg, VA. May, 2019.

"The Construction of Missing-Robust Experimental Designs and their Comparison to Classical and Optimal Designs." The Design and Analysis of Experiments (DAE 2017) Conference, UCLA. October 2017.

"Evaluating and Constructing Designs for Robustness to Unusable Observations." IFPAC-2017, North Bethesda, MD. March 2017.

"Model-Robust Mixture Experiments." International Conference on Design of Experiments, Memphis, TN. May 2016.

"Generating and Comparing Pareto Fronts of Experiment Designs to Simultaneously Account for Multiple Experimental Objectives." Designed Experiments: Recent Advances in Methods and Applications (DEMA 2015), Sydney, Australia. December 2015.

"Generating and Comparing Pareto Fronts of Experiment Designs to Simultaneously Account for Multiple Experimental Objectives." INFORMS Annual Meeting, Philadelphia. November 2015.

"Approximate Model Spaces for Model-Robust Experiment Design." Fall Technical Conference, Richmond, VA (*Technometrics* invited session). October 2014.

"Approximate Model Spaces for Model-Robust Experiment Design." European Network of Business and Industrial Statistics, 2014 (ENBIS-14), Johannes Kepler Universität, Linz, Austria. September 2014.

"Approximate Model Spaces for Model-Robust Experiment Design." Design and Analysis of Experiments 2012, University of Georgia. October 2012.

"Algorithms and Model Spaces for Model-Robust Experiment Design." Spring Research Conference, Harvard (*Journal of Quality Technology* Invited Session). June 2012.

DEPARTMENT OR ORGANIZATION PRESENTATIONS	"Virtuous statistics: truth, service, and humility for the cause of science", The University of Pennsylvania School of Nursing, March 2024 (virtual)

"Row-Constrained Supersaturated Designs for Biological Screening", Kent State University, Department of Mathematical Sciences. March 2024.

"Row-Constrained Supersaturated Designs for Biological Screening", Henry Ford Health, Public Health Sciences Division of Biostatistics. January 2024 (virtual).

"Row-Constrained Supersaturated Designs for Biological Screening", Purdue University Department of Statistics Colloquium Series. September 2023.

"Response surface models: To reduce or not to reduce?", Design of Experiments Fireside Chat with Dr. Doug Montgomery. March 2023.

"Meta-Model Optimization of Simulated EMS Systems: A Case of Statistical Engineering." Seminar, Eastern Kentucky University. November 2022.

"Using Statistics to Predict: Politics, Sports, Shakespeare, and ... Business!" BASF, Florham Park, NJ. March 2016.

"Powerful Supersaturated Designs when Effect Directions are Known." BERD Seminar, Cincinnati Children's Center for Clinical & Transitional Science & Training. February 2016.

"Approximate Model Spaces for Model-Robust Experiment Design." Department of Statistics and Operations Research. Virginia Commonwealth University. March 2014.

"Candidate-List-Free Exchange Algorithms for Exact, Model-Robust Designs." Proctor & Gamble, Mason, OH. January 2011.

"Model-Robust Experimental Design: Beyond Completely Randomized Experiments" U.S. Census Bureau. May 2010.

"A Maximin Model-Robust Exchange Algorithm and its Generalization." Alumni Workshop, Penn State University. March 2010.

"Exchange Algorithms for Model-Robust, Exact Experimental Designs." Miami University at Oxford, OH. March 2010.

CONTRIBUTED PRESENTATIONS

"Comparing Supersaturated Designs Using Exact Screening Probabilities", Quality & Productivity Research Conference, Houston, TX. June 2023.

"The State of Supersaturated Design and Analysis", Fall Technical Conference, Park City, UT. October 2022.

"Predictive Response Surface Models: To Reduce or Not to Reduce?" Fall Technical Conference, West Palm Beach. October 2018.

"Predictive Response Surface Models: To Reduce or Not to Reduce?" Joint Statistical Meetings, Vancouver. August 2018.

"A Meta Analysis of Response Surface Experiments." Fall Technical Conference, Minneapolis. October 2016.

"A Meta Analysis of Response Surface Experiments." Joint Statistical Meetings, Chicago. August 2016.

"Generating and Comparing Pareto Fronts of Experiment Designs to Simultaneously Account for Multiple Experimental Objectives." Joint Statistical Meetings, Seattle. August 2015.

"Approximate Model Spaces for Model-Robust Experiment Design." Fall Technical Conference, San Antonio. October 2013.

"Fast Calculation of Exact Contingency Table Cell Bounds Given Conditional Frequencies." Joint Statistical Meetings, Montreal. August, 2013.

"Powerful Supersaturated Designs." Joint Statistical Meetings, San Diego. July 2012. Topic-contributed.

"Candidate-List-Free Exchange Algorithms for Two-Level Model-Robust Designs." Fall Technical Conference, Kansas City. October 2011.

"Candidate-List-Free Exchange Algorithms for Exact, Model-Robust Designs." International Conference on Design of Experiments, Memphis, TN. May 2011.

"Correcting Bias Introduced by Aerial Counts in Angler Effort Estimation." American Fisheries Society Annual Meeting, Pittsburgh. Finalist (out of 19) for Best Student Paper. September 2010.

"Maximin Model-Robust Designs for Split-Plot Experiments." Joint Statistical Meetings, Vancouver. August 2010.

"A Maximin Model-Robust Exchange Algorithm and its Generalization." Joint Research Conference, NIST, Gaithersburg, MD. May 2010.

"Multiresponse Exchange Algorithms for Model-Robust Experimental Design." Fall Technical Conference, Indianapolis. October 2009.

"Cell bounds in two-way contingency tables based on conditional frequencies." Privacy and Statistical Databases, Istanbul. September 2008.

"Cell bounds in two-way contingency tables based on conditional frequencies." Joint Statistical Meetings, Denver. August 2008.

EXTERNAL RESEARCH FUNDING	National Eye Institute (NIH) (R01), "Upon Solving the Secrets for Lens Transdifferentiation". PI: Katia Del Rio-Tsonis. My role: Key personnel. Funded 06/24-05/29. National Eye Institute (NIH) (R01), "A Roadmap to Uncover RPE Plasticity", $1,445,000. PI: Katia Del Rio-Tsonis. My role: Key personnel. Funded 06/23-05/27.

National Institutes of Health (R01), "Sustained regulation of hypothalamus-pituitary-ovary hormones with allogeneic tissue-engineered ovarian constructs as a treatment for osteoporosis in females". $2,531,619. PI: Justin Saul. My role: Co-PI. Funded 05/2023-03/2028.

National Eye Institute (NIH) (R21), "Inflammation is a driver of newt lens regeneration". $388,475. PI: Katia Del Rio-Tsonis. My role: Statistical personnel. Funded 09/2022-08/2024.

National Institue on Aging (NIH) (R03), "The Use of Virtual Manipulations to Assess Fall Risk and the Mechanisms of Postural Instability that Occur with Age". $144,500. PI: James Chagdes. My role: Key personnel. Funded 03/2021-02/2024 (NCE).

National Eye Institute (NIH) (R21), "In vivo imaging of newt lens regeneration: Novel molecular, cellular and functional insights". $388,475. PIs: Hui Wang and Katia Del Rio-Tsonis. My role: Statistical personnel. Funded 09/2020-08/2023 (NCE).

National Institutes of Health (R01), "On Determinants of Lens Regeneration", $1,083,750. PI: Katia Del Rio-Tsonis. My role: Key personnel. Funded 09/2017-05/2022.

National Institutes of Health (R21), "Investigating the role of NKX6-1 in secondary lens fiber cell differentiation". $391,956. PI: Michael Robinson. My role: Key personnel. Funded 02/2020-01/2022.

U.S. Census Bureau Dissertation Fellowship, 2009-2010; $50,000.

INTERNAL RESEARCH FUNDING	Miami University, Committee on Faculty Research, "An Experimental Design Approach to Biological Screening". $49,744. Funded 05/2023-12/2024. My role: PI.

Miami University 2018 College of Arts and Science Dean's Scholar advisor for Yuexi Wang and Le Chang. $750 + $1,500 for the students.

Miami University Center for Analytics & Data Science 2017 Summer Research Fellowship. "Model Selection Using Approximate Leverage Methods for Big Data Regression". $2,000.

Miami University, Committee on Faculty Research. $6200. Summer 2011.

Summer research grant for new tenure-track faculty, awarded for summer 2011. Miami University, College of Arts and Sciences, deferred to summer 2012. $5000.

TEACHING   Miami University

STA 261, Statistics (4 cr)   Fall 2021

STA 301, Applied Statistics (3 cr)   Spring 2016

STA 363, Regression and Design of Experiments (3 cr)   Spring 2011, Spring 2024

STA 401/501, Introduction to Probability (3 cr)
                            Fall 2010-2012, 2015-2016; Spring 2011-2012, 2015

STA 463/563, Regression Analysis (4 cr)
                            Fall 2013-2015, 2017-2018, 2023; Spring 2013, 2022-2023

STA 466/566, Experimental Design Methods (4 cr)
                            Fall 2018-2019; Spring 2015-2019, 2021-2022, 2024

STA 475, Data Analysis Practicum (3 cr)   Fall 2019; Spring 2012-2013, 2020-2021

STA 650, Topics in Statistics (1 cr)   Spring 2020

STA 651, Advanced Statistical Methods I (1 cr)   Fall 2020-2021, 2023

STA 652, Advanced Statistical Methods II (1 cr)   Spring 2023

STA 660, Practicum in Data Analysis (3 cr)   Fall 2013, 2016-2017, 2020

STA 672, Modeling and Study Analysis (4 cr)   Fall 2020-2021

STA 686, Quality Control and Industrial Statistics (3 cr)
                            Fall 2011-2012, 2014; Spring 2017

The Pennsylvania State University

STAT 200, Elementary Statistics. Summers 2006, 2007.

ADVISING   Master's advisor (STA unless otherwise noted)

Jeremy Baggs (2024). Topic: Optimal Designs Robust to Leave-One-Out Cross-Validation.

Isaac Williams (2024). Topic: Comparing Design and Analysis Methods in Biological Screening: SSD vs. STD vs. OCOW

Jacob Akubire (2023). Topic: Supersaturated Designs vs. Orthogonal Arrays: How Much Do They Differ?

Arthur Sweetman (2022). Topic: An Experimental Analysis of Modeling the Effect of Neuromuscular Feedback Delay on Postural Instability

Qin Zhang (2022). Topic: Multi-Objective Optimization of Simulated EMS System

Kelvin Njuki (2021). Topic: Comparison of Two Strategies of Screening Experiments: Single-shot Experiment vs. Two-stage Screening Experiment

Matthew Snyder (2021). Topic: A Metamodeling Approach to the Optimization of Simulated Emergency Medical Services Systems

Jacob Smith (2021). Topic: Cluster Analysis of Ancient Hebrew Bible Manuscripts

Alison Tuiyott (2020). Topic: Utilizing the Raw Plus/Minus Statistic in Womens NCAA Basketball

Rachel Hopkins (2020). Topic: Metamodeling to Improve Emergency Medical Systems: Two Case Studies

Charlie Liu (Department of Mathematics) (2020). Topic: Approximate Leveraging Algorithms for Model-Building.

Xinyuan Liu (2019). Topic: Predictive Models Using Leverage-Based Subsampling Methods for Big Data Regression

Kaitlyn Harrison (2019). Topic: Analysis of Donor Data from Miami's Advancement Office.

Eric Ansong (2019). Topic: Coordinate Exchange Algorithms for Regularization-Based Supersaturated Designs.

Nick Darby (2018) Topic: Identifying Natural Behavioral Clusters in Heroes of the Storm.

Chelsea Hillenburg (2017). Topic: Predicting and Evaluating Emergency Response Times in Rural Minnesota.

Mengdi Fu (co-advised with Maria Weese) (2017). Topic: A Simple Enhancement to the Gauss-Dantzig Selector with Application to Supersaturated Experiments.

Becky Ockuly (co-advising with Maria Weese; finished project in 2016). Topic: Response Surface Experiments: A Meta-Analysis.

Joe Palascak (2016). Topic: Optimizing Designs for the Arbitrary Factorial Term Model Space.

Nicholas Uth (Department of Chemical, Paper and Biomedical Engineering; co-advising with Amy Yousefi; 2016). Topic: Computational Design and Optimization of Bone Tissue Engineering Scaffold Topology.

Paul Kristoffersen (Department of Mathematics) (2015). Topic: Model-robust Mixture Designs

Mike LaTour (2014). Topic: Statistical Analysis of Patron Preferences and Resource Utilization at B.E.S.T. Library

Zichen Wu (2014). Topic: Using Coordinate Exchange Algorithm to Construct Designs Robust to Unusable Observations

Bo Wang (2014). Topic: Impact of Missing Data on D-efficiency and I-efficiency of Several Important Designs

Xinping Zhang (2013). Topic: Forecasting ticket sales for Cincinnati Shakespeare Company

Lisa Werwinski (co-advisor) (2013). Topic: Predicting Academic and Competitive Success in the Sports of Football and Women's Swimming and Diving at Football Bowl Subdivision (FBS) Institutions

Jennifer Webb (2013). Topic: Design in Toxicology for Unconventional Experiments

Traci Blonquist (2012). Topic: Exploring A Mixture of Regressions using regmixEM in mixtools

Nathan Drew (2012). Topic: On the Enhanced Stochastic Evolutionary Algorithm and the Construction of Approximate Model Spaces for Model-Robust Experimental Designs

Undergraduate research mentor

Greg Keslin (2019). Topic: Optimal Designs for Informative Subsampling.

Le Chang (2017). Topic: Leverage-based subsampling for big data regression.

Yuexi Wang (2017). Topic: Leverage-based subsampling for big data regression.

Le Chang (2016). Topic: Response Surface Experiments: A Meta-Analysis.

PhD committee member

Yongtao Cao (University of Wyoming, Department of Statistics) (2014). Title: "Multiple-criteria Optimal Experimental Design – Algorithms and Applications"

Master's committee member (STA unless otherwise noted)

Austin Edwards (2023); Dorian Frampton (2022); Elliot Maceda (2022); Lina Lee (2020); Joey Davis (2020); Cecile Blahunka (2020); David Lau (2019); Yunzhi Kang (2019); Hollin Han (2019); David Swart (2018); Li Ping (2017); Sambed Adhikari (2016); Travis Sellers (2016); Gejun Zhu (2016); Zheng Zhu (2016); Ryan Brunton (2015); Pamela Castricone (2015); Cunyang Xia (2014); Qing Ji (2013); Pradnya Patil (2012); Geng Chen (2011)

SERVICE   To Miami University

Statistics Department
- Promotion & Tenure Committee Chair, 2017-present.
- Department scheduling, 2017-present
- Comprehensive/Qualifying Exam Committee, 2014-present
- Co-Chair of Search Committee, 2020-2021
- Member, Search Committee, 2012-2013, 2014-2015, 2017, 2019-2020
- Actuarial science advisor, 2013-2016.
- Co-director (with Doug Noe and Bob Davis) of Statistics in Sports conference at Miami, Fall 2012
- Colloquium Committee, 2010-2016

University
- Member, Committee on Faculty Research (CFR), 2019-2022; Chair of the Applied and Natural Sciences subcommittee, 2020
- Outside member, Political Science search committee, 2017-2018
- Member search committee, Miami University-Middletown statistics position, 2016-2017
- Mechanical and Manufacturing Engineering Department Review Committee, 2017
- Undergraduate Research Committee, Miami University, 2015-2017
- Petitions Sub-Committee of Graduate Council, Miami University, 2013-2015

To the profession

Editorial/Review

- *Journal of Amish and Plain Anabaptist Studies*, Editorial Board member. 2020-present.
- *Quality Engineering*, Editorial Review Board member. 2019-present.
- Editor, "Open Challenges in Industrial Statistics" column, *Quality Engineering*, 2019-present. (Co-editor from 2017-2019.) - This has been inactive for the last several years.
- Referee for many journals, including *Technometrics*, *Journal of Quality Technology*, *Statistics and Computing*, *European Journal of Operational Research*, *Quality Engineering*, and *Journal of Statistical Computation and Simulation*.

Professional Society

- 2019 Chair (elected), the American Statistical Associations Section on the Physical and Engineering Sciences. Additionally, performed responsibilities in 2018 as Chair-Elect and in 2020 as Past Chair.
- 2017 Joint Statistical Meetings (JSM) Program Chair (elected) for the Section on Physical and Engineering Sciences. In 2016, responsible to organize roundtable sessions at the Joint Statistical Meetings. In 2017, responsible for the SPES-sponsored JSM program.
- Member of ASA President's "Making an Impact" Task Force, 2019-2020.
- Member of Youden Address Committee. The committee selected Michael Hamada to deliver the Youden Address at the 2020 Fall Technical Conference. Due to COVID-19, the conference was delayed one year.
- Member of SPES Charter Review Committee, 2018
- Continuing Education Chair for American Statistical Association's Section on Physical and Engineering Statistics, 2012-2015.

Conference-related

- Session Organizer, 2023 IMS/ASA Spring Research Conference in Banff, Albert.
- Invited Session Organizer, JSM 2022. "Innovations on Teaching Experiments: Active Learning, Data Science, and Optimal Design."
- Session chair, 2018 Fall Technical Conference.
- Session Organizer, "Rethinking the Analysis of Modern Designed Experiments", JSM 2017
- Invited Session Organizer, "The Extraordinary Power of Designed Experiments", JSM 2016.
- Chair of contributed program, member of program committee, and session organizer. 2015 Spring Research Conference, Cincinnati. 2014-2015.
- Session organizer and chair of topic-contributed session, "Model-Robust Design: Why Not More Impact?", JSM 2012.

Miscellaneous

- External reviewer for promotion and tenure of Danel Draguljic at Franklin & Marshall College, 2017
- Reviewer for internal proposal at the University of Central Oklahoma, 2016.
- Co-developed the Industrial Statistics Virtual Collaboratory, an online space to encourage collaboration between industry and academia, 2016-2017.

HONORS   2022 Lloyd S. Nelson Award, for "Response surface models: To reduce or not to reduce?" (with David Edwards and Maria Weese), given to the paper appearing in the 2021 *Journal of Quality Technology* with the "greatest immediate impact to practitioners."

2nd place, 2021 Syngenta Crop Challenge in Analytics (with Mingshi Cui and Kunting Qi).

Runner-up Outstanding Presentation from the American Statistical Association's Section on Physical and Engineering Sciences for contributed talk, "Predictive Response Surface Models: To Reduce or Not to Reduce?", at the 2018 Joint Statistical Meetings.

Honorable Mention Presentation Award from the American Statistical Association's Section on Physical and Engineering Sciences for contributed talk, "A Meta-Analysis of Response Surface Studies", at the 2016 Joint Statistical Meetings.

Elected Member of the International Statistical Institute (2016).

2015 Miami University Junior Faculty Distinguished Scholar Award. September, 2015.

Honorable Mention Presentation Award from the American Statistical Association's Section on Physical and Engineering Sciences for contributed talk at the 2010 Joint Statistical Meetings.

Finalist (one of five) for 2009 Shewell Award for best presentation at the Fall Technical Conference, for talk entitled "Multiresponse Exchange Algorithms for Model-Robust Experimental Design".

Student Paper Competition winner (one of five), 2008, for "Calculating Cell Bounds Based on Conditional Frequencies"; contest sponsored jointly by the Social Statistics, Government Statistics, and Survey Research Methods sections of the American Statistical Association.

Top score, Department of Statistics Master's Qualifying Exam Applied Section, May 2006.

First Place in class of Industrial and Manufacturing Engineering students at Oregon State for Senior Project, "Grass Seed Crop Mix Optimization" with Kyle Erickson and Jenni Barnes.