

JASON M. KLUSOWSKI

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<https://klusowski.princeton.edu>

EDUCATION

Yale University 2013-2018
Ph.D. in Statistics & Data Science *New Haven, Connecticut, USA*

- Advisor: Andrew R. Barron
- Thesis: “Density, Function, and Parameter Estimation with High-Dimensional Data”
- Francis J. Anscombe Award: “Given on an occasional basis for outstanding academic performance in the Department of Statistics.”

University of Manitoba 2008-2013
B.Sc. (Honors) in Mathematics & Statistics *Winnipeg, Manitoba, Canada*

- Canadian Governor General’s Silver Medal: “Awarded to the undergraduate who achieves the highest academic standing upon graduation from a bachelor degree program.”

EMPLOYMENT

Assistant Professor, Department of Operations Research & Financial Engineering (ORFE) 2020-Present
Princeton University, School of Engineering and Applied Science (SEAS) *Princeton, New Jersey, USA*

Assistant Professor, Department of Statistics 2018-2020
Rutgers University—New Brunswick *Piscataway, New Jersey, USA*

GRANTS

SEAS Innovation Research Grant “Improving Predictions by Combining Models” 2024-2026
Principal Investigator *\$140,000*

NSF CAREER DMS-2239448 “Statistical Learning with Recursive Partitioning: Algorithms, Accuracy, & Applications” 2023-2028
Principal Investigator *\$450,000*

NSF DMS-2054808 “Deep Learning & Random Forests for High-Dimensional Regression” 2019-2023
Principal Investigator *\$180,000*

NSF TRIPODS-1934924 “Data Science Principles of the Human-Machine Convergence” 2019-2023
Senior Personnel *\$1,500,000*

AWARDS

SEAS Letter of Commendation for Teaching Fall 2023
For outstanding teaching

Howard B. Wentz, Jr., SEAS Junior Faculty Award 2023
For outstanding teaching and research *\$50,000*

RESEARCH PAPERS

Journal Publications

- Matias D Cattaneo, Rajita Chandak, and Jason M Klusowski. Convergence Rates of Oblique Regression Trees for Flexible Function Libraries. *Forthcoming in Annals of Statistics*, 2024
- Zhiqi Bu, Jason M. Klusowski, Cynthia Rush, and Weijie J. Su. Characterizing the SLOPE trade-off: A variational perspective and the Donoho–Tanner limit. *The Annals of Statistics*, 51(1):33 – 61, 2023
- Jason M. Klusowski and Peter M. Tian. Large scale prediction with decision trees. *Journal of the American Statistical Association*, 0(ja):1–36, 2023
- Jason M Klusowski. Sparse Learning with CART for Noiseless Regression Models. *Forthcoming in IEEE Transactions on Information Theory*, 2022
- Victor-Emmanuel Brunel, Jason M Klusowski, and Dana Yang. Estimation of Convex Supports from Noisy Measurements. *Bernoulli*, 27(2):772 – 793, 2021
- Jason M Klusowski and Yihong Wu. Estimating the Number of Connected Components in a Graph via Subgraph Sampling. *Bernoulli*, 26(3):1635 – 1664, 2020
- Zhiqi Bu, Jason M Klusowski, Cynthia Rush, and Weijie J Su. Algorithmic Analysis and Statistical Estimation of SLOPE via Approximate Message Passing. *IEEE Transactions on Information Theory*, 67(1):506–537, 2021
- Jason M Klusowski, Dana Yang, and WD Brinda. Estimating the Coefficients of a Mixture of Two Linear Regressions by Expectation Maximization. *IEEE Transactions on Information Theory*, 65(6):3515–3524, 2019
- WD Brinda, Jason M Klusowski, and Dana Yang. Hölder’s Identity. *Statistics & Probability Letters*, 148:150–154, 2019
- WD Brinda and Jason M Klusowski. Finite-Sample Risk Bounds for Maximum Likelihood Estimation with Arbitrary Penalties. *IEEE Transactions on Information Theory*, 64(4):2727–2741, 2018
- Jason M Klusowski and Andrew R Barron. Approximation by Combinations of ReLU and Squared ReLU Ridge Functions With ℓ^1 and ℓ^0 Controls. *IEEE Transactions on Information Theory*, 64(12):7649–7656, 2018

Conference Proceedings

- Jason M Klusowski and Peter Tian. Nonparametric Variable Screening with Optimal Decision Stumps. In Arindam Banerjee and Kenji Fukumizu, editors, *Proceedings of The 24th International Conference on Artificial Intelligence and Statistics*, volume 130 of *Proceedings of Machine Learning Research*, pages 748–756. PMLR, 13–15 Apr 2021
- Jason M Klusowski. Sharp Analysis of a Simple Model for Random Forests. In Arindam Banerjee and Kenji Fukumizu, editors, *Proceedings of The 24th International Conference on Artificial Intelligence and Statistics*, volume 130 of *Proceedings of Machine Learning Research*, pages 757–765. PMLR, 13–15 Apr 2021
- Ryan Theisen, Jason M Klusowski, and Michael W Mahoney. Good Classifiers are Abundant in the Interpolating Regime. In Arindam Banerjee and Kenji Fukumizu, editors, *Proceedings of The 24th International Conference on Artificial Intelligence and Statistics*, volume 130 of *Proceedings of Machine Learning Research*, pages 3376–3384. PMLR, 13–15 Apr 2021
- Jason M Klusowski. Sparse Learning with CART. In H. Larochelle, M. Ranzato, R. Hadsell, M. F. Balcan, and H. Lin, editors, *Advances in Neural Information Processing Systems*, volume 33, pages 11612–11622. Curran Associates, Inc., 2020
- Zhiqi Bu, Jason M Klusowski, Cynthia Rush, and Weijie J Su. Algorithmic Analysis and Statistical Estimation of SLOPE via Approximate Message Passing. In H. Wallach, H. Larochelle, A. Beygelzimer, F. d’Alché-Buc, E. Fox, and R. Garnett, editors, *Advances in Neural Information Processing Systems*, volume 32. Curran Associates, Inc., 2019

- Jason M Klusowski and Yihong Wu. Counting Motifs with Graph Sampling. In Sébastien Bubeck, Vianney Perchet, and Philippe Rigollet, editors, *Proceedings of the 31st Conference On Learning Theory*, volume 75 of *Proceedings of Machine Learning Research*, pages 1966–2011. PMLR, 06–09 Jul 2018
- Jason M Klusowski and Andrew R Barron. Minimax Lower Bounds for Ridge Combinations Including Neural Nets. In *2017 IEEE International Symposium on Information Theory (ISIT)*, pages 1376–1380, 2017

Under Review

Jianqing Fan, Cheng Gao, and Jason M Klusowski. Robust Transfer Learning with Unreliable Source Data. *arXiv preprint arXiv:2310.04606*, Major revision at *Annals of Statistics*, 2023

Jason M Klusowski and Jonathan W Siegel. Sharp Convergence Rates for Matching Pursuit. *arXiv preprint arXiv:2307.07679*, Revise and resubmit at *IEEE Transactions on Information Theory*, 2023

- Xin Chen and Jason M Klusowski. Stochastic Gradient Descent for Additive Nonparametric Regression. *arXiv preprint arXiv:2401.00691*, 2024
- Matias D Cattaneo, Jason M Klusowski, and William G Underwood. Inference with Mondrian Random Forests. *arXiv preprint arXiv:2310.09702*, 2023
- Xin Chen, Jason M Klusowski, and Yan Shuo Tan. Error Reduction from Stacked Regressions. *arXiv preprint arXiv:2309.09880*, 2023
- Matias D Cattaneo, Jason M Klusowski, and Boris Shigida. On the Implicit Bias of Adam. *arXiv preprint arXiv:2309.00079*, 2023
- Matias D Cattaneo, Jason M Klusowski, and Peter M Tian. On the Pointwise Behavior of Recursive Partitioning and Its Implications for Heterogeneous Causal Effect Estimation. *arXiv preprint arXiv:2211.10805*, 2022
- Andrew R Barron and Jason M Klusowski. Approximation and Estimation for High-Dimensional Deep Learning Networks. *arXiv preprint arXiv:1809.03090*, Revise and resubmit at *IEEE Transactions on Information Theory*, 2023

In Progress

- Jason M Klusowski, Krishnakumar Balasubramanian, and Yan Shuo Tan. Towards Statistical-Computational Gaps in Decision Trees: A Performance Gap Between CART and Optimal Decision Trees
- Jason M Klusowski and Jonathan W Siegel. The Effect of Shrinkage in L2 Boosting

INVITED TALKS & PRESENTATIONS

Iowa State University <i>Department of Statistics</i>	April 22, 2024 <i>Seminar Speaker</i>
Georgia Institute of Technology <i>School of Mathematics</i>	March 28, 2024 <i>Seminar Speaker</i>
Texas A&M University <i>Department of Mathematics</i>	March 6, 2024 <i>Seminar Speaker</i>
IMS International Conference on Statistics and Data Science (ICSIDS) <i>Lisbon, Portugal</i>	December 2023 <i>Session Speaker</i>
Michigan State University <i>Department of Statistics and Probability</i>	October 12, 2023 <i>Seminar Speaker</i>
Joint Statistical Meetings (JSM) <i>Toronto, Canada</i>	August 10, 2023 <i>Session Speaker</i>

Instacart <i>Economics Group</i>	June 5, 2023 <i>Seminar Speaker</i>
Princeton University <i>Department of Economics</i>	April 11, 2023 <i>Seminar Speaker</i>
American Statistical Association <i>Section on Statistical Learning and Data Science</i>	March 30, 2023 <i>Webinar Speaker</i>
Cornell University <i>Department of Statistics and Mathematics</i>	March 22, 2023 <i>Seminar Speaker</i>
SUNY Binghamton <i>Department of Statistics and Mathematics</i>	March 21, 2023 <i>Seminar Speaker</i>
University of Sydney Business School <i>Business Analytics</i>	February 23, 2023 <i>Seminar Speaker</i>
George Mason University <i>Department of Statistics</i>	November 18, 2022 <i>Seminar speaker</i>
Western North American Region of The International Biometric Society (WNAR) <i>New Frontiers in Nonparametric Learning, Sparse Learning, and Deep Learning</i>	June 14, 2022 <i>Session Speaker</i>
The Wharton School of the University of Pennsylvania <i>Department of Statistics and Data Science</i>	April 20, 2022 <i>Seminar Speaker</i>
Rutgers Business School <i>Management Science and Information Systems</i>	December 9, 2021 <i>Seminar Speaker</i>
University of Chicago <i>Department of Statistics</i>	November 29, 2021 <i>Seminar Speaker</i>
Heidelberg University <i>Statistics Group</i>	November 25, 2021 <i>Seminar Speaker</i>
London Business School <i>Management Science and Operations</i>	September 30, 2021 <i>Seminar Speaker</i>
6th Canadian Conference in Applied Statistics <i>Statistics and Deep Learning</i>	July 17, 2021 <i>Session Speaker</i>
International Indian Statistical Association <i>Random Forests and Ensemble Learning</i>	May 22, 2021 <i>Session Speaker</i>
AISTATS <i>Poster Presentation</i>	April 13, 2021
University of Florida <i>Department of Statistics</i>	March 11, 2021 <i>Seminar Seminar</i>
CMStatistics <i>Recent Advances Toward Understanding Deep Learning</i>	December 19, 2020 <i>Session Speaker</i>
NeurIPS <i>Poster Presentation</i>	December 10, 2020

Merck & Co., Inc. <i>Biostatistics Group</i>	October 14, 2020 <i>Seminar Speaker</i>
Purdue University <i>Department of Mathematics</i>	October 5, 2020 <i>Seminar Speaker</i>
One World Seminar Series on the Mathematics of Machine Learning <i>Seminar Speaker</i>	September 30, 2020
2020 Joint Statistical Meetings (JSM) <i>Theoretical Advances in Deep Learning</i>	August 5, 2020 <i>Session Speaker</i>
University of California, Berkeley <i>Michael Mahoney's Research Group</i>	May 28, 2020 <i>Speaker</i>
Princeton University <i>Department of Operations Research & Financial Engineering</i>	November 22, 2019 <i>Seminar Speaker</i>
Rutgers University, New Brunswick <i>Department of Electrical and Computer Engineering</i>	October 2, 2019 <i>Seminar Speaker</i>
Pennsylvania State University <i>Department of Mathematics</i>	September 27, 2019 <i>Seminar Speaker</i>
Columbia University <i>Department of Statistics</i>	September 16, 2019 <i>Seminar Speaker</i>
Duke University <i>SAMSI Deep Learning Workshop</i>	August 13, 2019 <i>Session Speaker</i>
Colgate-Palmolive Company <i>Statistics Group</i>	August 6, 2019 <i>Seminar Speaker</i>
Merck & Co., Inc. <i>Biostatistics Group</i>	July 17, 2019 <i>Seminar Speaker</i>
Columbia University <i>Workshop on Machine Learning and Data Science</i>	June 19, 2019 <i>Session Speaker</i>
Virginia Tech <i>IMS/ASA Spring Research Conference</i>	May 22, 2019 <i>Session Speaker</i>
New England Statistics Symposium <i>Hartford, Connecticut</i>	May 17, 2019 <i>Session Speaker</i>
Princeton University <i>Department of Operations Research & Financial Engineering</i>	April 8, 2019 <i>Seminar Speaker</i>
University of Maryland - College Park <i>Department of Mathematics</i>	October 16, 2018 <i>Seminar Speaker</i>
Georgia Institute of Technology <i>Workshop on Theoretical Foundation of Deep Learning</i>	October 8, 2018 <i>Session Speaker</i>
Simon Fraser University <i>20th IMS New Researchers Conference</i>	July 26, 2018 <i>Session Speaker</i>

Massachusetts Institute of Technology <i>Workshop on Sublinear Algorithms</i>	June 11, 2018 <i>Poster Presentation</i>
Baruch College, Zicklin School of Business <i>Department of Information Systems and Statistics</i>	February 14, 2018 <i>Seminar Speaker</i>
University of North Carolina - Chapel Hill <i>Department of Statistics and Operations Research</i>	February 5, 2018 <i>Seminar Speaker</i>
Rutgers University <i>Department of Statistics and Biostatistics</i>	February 1, 2018 <i>Seminar Speaker</i>
University of Delaware <i>Department of Applied Economics and Statistics</i>	January 23, 2018 <i>Seminar Speaker</i>
Indiana University <i>Department of Statistics</i>	January 16, 2018 <i>Seminar Speaker</i>
University of Notre Dame <i>Department of Applied and Computational Mathematics and Statistics</i>	January 12, 2018 <i>Seminar Speaker</i>
Queen's University <i>Department of Mathematics and Statistics</i>	November 29, 2017 <i>Seminar Speaker</i>
IEEE International Symposium on Information Theory <i>Aachen, Germany</i>	June 27, 2017 <i>Session Speaker</i>
Boston Machine Learning Group <i>StubHub, Boston, MA, USA</i>	June 6, 2016 <i>Seminar Speaker</i>
Université de Montréal <i>Canadian Undergraduate Mathematics Conference</i>	July 2013 <i>Session Speaker</i>
UBC Okanagan <i>Canadian Undergraduate Mathematics Conference</i>	July 2012 <i>Session Speaker</i>

TEACHING

Princeton University, Department of ORFE <i>Instructor</i>	Spring 2021, 2022, 2023, & 2024 <i>Princeton, NJ, USA</i>
· ORF/FIN 504 - Financial Econometrics	
Princeton University, Department of ORFE <i>Instructor</i>	Fall 2021, 2022, & 2023 <i>Princeton, NJ, USA</i>
· ORF 405 - Regression and Applied Time Series	
Rutgers University, Department of Statistics <i>Instructor</i>	Spring 2019 & 2020 <i>New Brunswick, NJ, USA</i>
· STAT 597 - Data Wrangling & Husbandry (MSDS)	
Rutgers University, Department of Statistics <i>Instructor</i>	Fall 2019 <i>New Brunswick, NJ, USA</i>
· STAT 534 - Statistical Learning for Data Science (MSDS)	

Rutgers University, Department of Statistics
Instructor

Fall 2018
New Brunswick, NJ, USA

- STAT 581 - Probability & Statistical Inference (MSDS & FSRM)

Yale University, Department of Statistics & Data Science
Teaching Fellow

2014-2017
New Haven, CT, USA

- STAT 664 - Information Theory
- STAT 541 - Probability Theory
- STAT 365 - Data Mining and Machine Learning
- STAT 312 - Linear Models
- STAT 238 - Probability and Statistics

SERVICE

Conference, Workshop, & Session Organization

- Bernoulli-IMS 11th World Congress in Probability and Statistics, Organizer of Session on “Classification and Clustering,” 2024
- Joint Statistical Meetings (JSM), Co-organizer of Session on “Recent Advances in Decision Tree and Random Forest Theory,” 2023
- Princeton Day of Statistics, Organizing Committee, 2022 & 2023

Doctoral Student Advising

- Xin Chen, Ph.D. in ORFE, Princeton University, expected 2026
- Cheng Gao, Ph.D. in ORFE, Princeton University, expected 2026
- William Underwood, Ph.D. in ORFE, Princeton University, expected 2024
Postdoctoral Research Associate, Department of Pure Mathematics and Mathematical Statistics, University of Cambridge, 2024-2026
- Rajita Chandak, Ph.D. in ORFE, Princeton University, expected 2024
Bernoulli Instructor, Institute of Mathematics, École Polytechnique Fédérale de Lausanne (EPFL), 2024-2026
Initial placement: Assistant Professor, Department of Statistics, University of Wisconsin, starting 2026
- Peter Tian, Ph.D. in ORFE, Princeton University, 2023
Initial placement: Quantitative Researcher at Two Sigma Investments, LP

Doctoral Student Thesis Committee

- Hongkang Yang, Princeton PACM FPO Exam, 2023
- Devavrat Dabke, Princeton PACM FPO Exam, 2023
- Mengxin Yu, Princeton ORFE FPO Exam, 2023
- Bingyan Wang, Princeton ORFE FPO Exam, 2023
- Yuling Yan, Princeton ORFE FPO Reader, 2023
- Samy Jelassi, Princeton ORFE FPO Reader, 2023
- Jiawei Ge, Princeton ORFE General Exam, 2023
- Boris Shigida, Princeton ORFE General Exam, 2023
- Zhixu Tao, Princeton ORFE General Exam, 2023
- Ruiqi Yu, Princeton ORFE General Exam, 2023
- Till Raphael Saenger, Princeton ORFE General Exam, 2023
- Giulia Crippa, Princeton ORFE General Exam, 2023
- Igor Silin, Princeton ORFE FPO Exam, 2022
- Francesca Tang, Princeton ORFE FPO Exam, 2022

- Yongyi Guo, Princeton ORFE FPO Exam, 2022
- Zheng Yu, Princeton ORFE FPO Reader, 2022
- Yaqi Duan, Princeton ORFE FPO Reader, 2022
- Zhuoran Yang, Princeton ORFE FPO Reader, 2022
- Irina Wang, Princeton ORFE General Exam, 2022
- Jikai Hou, Princeton ORFE General Exam, 2022
- Yihong Gu, Princeton ORFE General Exam, 2022
- Zachary Hervieux-Moore, Princeton ORFE FPO Reader, 2021
- Lirong Xue, Princeton ORFE FPO Reader, 2021
- Tony Ye, Princeton ORFE FPO Reader, 2021
- Yifeng Zhou, Princeton ORFE FPO Reader, 2021
- Hao Gong, Princeton ORFE FPO Reader, 2021
- Kun Lu, Princeton ORFE FPO Reader, 2021
- William Underwood, Princeton ORFE General Exam, 2021
- Rajita Chandak, Princeton ORFE General Exam, 2021

Master's Student Advising

- Sinan Ozbay, Princeton Bendheim Center for Finance Master's Thesis, 2023

Undergraduate Research Advising

- Annie Liang, 2023-Present (Industry collaboration with Merck & Co., Inc.)
- Ambri Ma, Princeton ORFE Senior Thesis, 2023-2024
- Riri Jiang, Princeton ORFE Senior Thesis, 2023-2024
- Addele Hargenrader, Princeton ORFE Junior Independent Work, 2023
- Jelmer Bennema, Princeton ORFE Senior Thesis, 2022-2023
- Aidan Lynott, Princeton ORFE Senior Thesis, 2022-2023
- Tony Ye, Princeton ORFE Senior Thesis, 2022-2023
- Bradley Moorehead, Princeton ORFE Senior Thesis, 2022-2023
- Roshini Balasubramanian, Princeton ORFE Senior Thesis, 2021-2022
- Aemu Anteneh, Princeton ORFE Senior Thesis, 2021-2022
- Sahithi Tirumala, Princeton ORFE Senior Thesis, 2021-2022
- Wilbur Wang, Princeton ORFE Senior Thesis, 2020-2021
- Cristina Hain, Princeton ORFE Senior Thesis, 2020-2021
- Sabarish Sainathan, Princeton COS Senior Thesis, 2020-2021

Undergraduate Academic Advising

- ORFE Undergraduate Academic Advising, 2020-Present
- BSE Incoming Freshmen Academic Advising, 2022

Princeton University, Committee Member & Affiliations

- Organizing Committee Chair of S. S. Wilks Memorial Seminar in Statistics, 2020-Present
- Organizing Committee Chair of ORFE Department Colloquia, 2022-2023
- Graduate Admissions Committee, 2022-2023
- Center for Statistics and Machine Learning (CSML), Participating Faculty

Rutgers University, Committee Member

Fall 2018-Spring 2020

- Professional Master's Program in Financial Statistics & Risk Management
- Professional Master's Program in Data Science

- Undergraduate Studies
- Student Outreach
- Social and Retreat

Grant Reviewing

March 2020, April 2022, February 2023, & March 2024

- National Science Foundation (NSF), Division of Mathematical Sciences (DMS), Panelist in Statistics

Journal and Conference Refereeing

- *Annals of Statistics*
- *Journal of Machine Learning Research* (Editorial Board of Reviewers)
- *Journal of the American Statistical Association*
- *Journal of the Royal Statistical Society: Series B*
- *Bernoulli*
- *Electronic Journal of Statistics*
- *IEEE Transactions on Information Theory*
- *Applied and Computational Harmonic Analysis*
- *Statistical Science*
- *Neural Networks*
- *Journal of Causal Inference*
- *Operations Research*
- *Mathematics of Operations Research*
- *SIAM Journal on Mathematics of Data Science*
- *Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques*
- *2018 IEEE International Symposium on Information Theory (ISIT)*
- *2019 IEEE International Symposium on Information Theory (ISIT)*
- *The Thirty-sixth International Conference on Machine Learning (ICML 2019)*
- *The Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS 2020)*
- *The Twenty-fourth International Conference on Artificial Intelligence and Statistics (AISTATS 2021)*
- *The Thirty-fourth Annual Conference on Learning Theory (COLT 2021)*

University of Manitoba, Department of Statistics Departmental Council

2012

- Undergraduate Student Representative, Voting Member

PROFESSIONAL MEMBERSHIP

- IEEE Information Theory Society
- American Statistical Association
- Institute of Mathematical Statistics
- Econometric Society

STUDENT AWARDS & SCHOLARSHIPS

Yale University

2014-2016

- *Clarke Fellow*
Wedworth W. Clarke (B.A. 1906) Scholarship Fund

Government of Canada

2013

- *NSERC Alexander Graham Bell Canada Graduate Scholarship* (\$17,500)
NSERC Postgraduate Scholarship accepted in its place

Government of Canada

2011-2013

- *NSERC Undergraduate Summer Research Award (3x)* (\$4,500)

University of Manitoba

2013

- *Governor General's Silver Medal*
For highest academic standing at the undergraduate level
- *Faculty of Science Medal in B.Sc. (Honours)*
For highest standing in a faculty or school program
- *Robert Ross McLaughlin Scholarship in Mathematics*
For a full-time student who has achieved the highest standing in the third year of any mathematics honours program

PERSONAL INFORMATION

- Born May 21, 1989, Winnipeg, Manitoba, Canada
- U.S. permanent resident since 2022

March 20, 2024