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. *The Annals of Statistics*, 52(2):466 – 490, 2024

- Jason M. Klusowski and Peter M. Tian. Large scale prediction with decision trees. *Journal of the American Statistical Association*, 119(545):525–537, 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. 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

- Matias D Cattaneo, Jason M Klusowski, and Boris Shigida. On the Implicit Bias of Adam. *arXiv preprint arXiv:2309.00079, To appear at ICML*, 2024

- 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

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, Reject and resubmit at Annals of Statistics*, 2022

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

- Andrew R Barron and Jason M Klusowski. Approximation and Estimation for High-Dimensional Deep Learning Networks. *arXiv preprint arXiv:1809.03090, Reject 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	April 22, 2024
Department of Statistics	*Seminar Speaker*
Georgia Institute of Technology	March 28, 2024
School of Mathematics	*Seminar Speaker*
Texas A&M University	March 6, 2024
Department of Mathematics	*Seminar Speaker*
IMS International Conference on Statistics and Data Science (ICSDS)	December 2023
Lisbon, Portugal	*Session Speaker*
Michigan State University	October 12, 2023
Department of Statistics and Probability	*Seminar Speaker*

Joint Statistical Meetings (JSM)
Toronto, Canada

August 10, 2023
Session Speaker

Instacart
Economics Group

June 5, 2023
Seminar Speaker

Princeton University
Department of Economics

April 11, 2023
Seminar Speaker

American Statistical Association
Section on Statistical Learning and Data Science

March 30, 2023
Webinar Speaker

Cornell University
Department of Statistics and Mathematics

March 22, 2023
Seminar Speaker

SUNY Binghamton
Department of Statistics and Mathematics

March 21, 2023
Seminar Speaker

University of Sydney Business School
Business Analytics

February 23, 2023
Seminar Speaker

George Mason University
Department of Statistics

November 18, 2022
Seminar speaker

Western North American Region of The International Biometric Society (WNAR)
New Frontiers in Nonparametric Learning, Sparse Learning, and Deep Learning

June 14, 2022
Session Speaker

The Wharton School of the University of Pennsylvania
Department of Statistics and Data Science

April 20, 2022
Seminar Speaker

Rutgers Business School
Management Science and Information Systems

December 9, 2021
Seminar Speaker

University of Chicago
Department of Statistics

November 29, 2021
Seminar Speaker

Heidelberg University
Statistics Group

November 25, 2021
Seminar Speaker

London Business School
Management Science and Operations

September 30, 2021
Seminar Speaker

6th Canadian Conference in Applied Statistics
Statistics and Deep Learning

July 17, 2021
Session Speaker

International Indian Statistical Association
Random Forests and Ensemble Learning

May 22, 2021
Session Speaker

AISTATS
Poster Presentation

April 13, 2021

University of Florida
Department of Statistics

March 11, 2021
Seminar Seminar

CMStatistics
Recent Advances Toward Understanding Deep Learning

December 19, 2020
Session Speaker

NeurIPS December 10, 2020
Poster Presentation

Merck & Co., Inc. October 14, 2020
Biostatistics Group *Seminar Speaker*

Purdue University October 5, 2020
Department of Mathematics *Seminar Speaker*

One World Seminar Series on the Mathematics of Machine Learning September 30, 2020
Seminar Speaker

2020 Joint Statistical Meetings (JSM) August 5, 2020
Theoretical Advances in Deep Learning *Session Speaker*

University of California, Berkeley May 28, 2020
Michael Mahoney's Research Group *Speaker*

Princeton University November 22, 2019
Department of Operations Research & Financial Engineering *Seminar Speaker*

Rutgers University, New Brunswick October 2, 2019
Department of Electrical and Computer Engineering *Seminar Speaker*

Pennsylvania State University September 27, 2019
Department of Mathematics *Seminar Speaker*

Columbia University September 16, 2019
Department of Statistics *Seminar Speaker*

Duke University August 13, 2019
SAMSI Deep Learning Workshop *Session Speaker*

Colgate-Palmolive Company August 6, 2019
Statistics Group *Seminar Speaker*

Merck & Co., Inc. July 17, 2019
Biostatistics Group *Seminar Speaker*

Columbia University June 19, 2019
Workshop on Machine Learning and Data Science *Session Speaker*

Virginia Tech May 22, 2019
IMS/ASA Spring Research Conference *Session Speaker*

New England Statistics Symposium May 17, 2019
Hartford, Connecticut *Session Speaker*

Princeton University April 8, 2019
Department of Operations Research & Financial Engineering *Seminar Speaker*

University of Maryland - College Park October 16, 2018
Department of Mathematics *Seminar Speaker*

Georgia Institute of Technology October 8, 2018
Workshop on Theoretical Foundation of Deep Learning *Session Speaker*

Simon Fraser University   July 26, 2018
20th IMS New Researchers Conference   *Session Speaker*

Massachusetts Institute of Technology   June 11, 2018
Workshop on Sublinear Algorithms   *Poster Presentation*

Baruch College, Zickilin School of Business   February 14, 2018
Department of Information Systems and Statistics   *Seminar Speaker*

University of North Carolina - Chapel Hill   February 5, 2018
Department of Statistics and Operations Research   *Seminar Speaker*

Rutgers University   February 1, 2018
Department of Statistics and Biostatistics   *Seminar Speaker*

University of Delaware   January 23, 2018
Department of Applied Economics and Statistics   *Seminar Speaker*

Indiana University   January 16, 2018
Department of Statistics   *Seminar Speaker*

University of Notre Dame   January 12, 2018
Department of Applied and Computational Mathematics and Statistics   *Seminar Speaker*

Queen's University   November 29, 2017
Department of Mathematics and Statistics   *Seminar Speaker*

IEEE International Symposium on Information Theory   June 27, 2017
Aachen, Germany   *Session Speaker*

Boston Machine Learning Group   June 6, 2016
StubHub, Boston, MA, USA   *Seminar Speaker*

Université de Montréal   July 2013
Canadian Undergraduate Mathematics Conference   *Session Speaker*

UBC Okanagan   July 2012
Canadian Undergraduate Mathematics Conference   *Session Speaker*

TEACHING

Princeton University, Department of ORFE   Spring 2021, 2022, 2023, & 2024
Instructor   *Princeton, NJ, USA*

· ORF/FIN 504 - Financial Econometrics

Princeton University, Department of ORFE   Fall 2021, 2022, & 2023
Instructor   *Princeton, NJ, USA*

· ORF 405 - Regression and Applied Time Series

Rutgers University, Department of Statistics   Spring 2019 & 2020
Instructor   *New Brunswick, NJ, USA*

· STAT 597 - Data Wrangling & Husbandry (MSDS)

Rutgers University, Department of Statistics   Fall 2019
Instructor   *New Brunswick, NJ, USA*

· STAT 534 - Statistical Learning for Data Science (MSDS)

Rutgers University, Department of Statistics   Fall 2018
Instructor   *New Brunswick, NJ, USA*

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

Yale University, Department of Statistics & Data Science   2014-2017
Teaching Fellow   *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

Postdoctoral Advising

· Omar Hagrass, ORFE, Princeton University, beginning July 2024

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

May 14, 2024