

Sabyasachi Chatterjee

ASSISTANT PROFESSOR OF STATISTICS

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Education

Yale University

PHD STATISTICS

• Advisor: Dr. Andrew Barron

New Haven, USA

2009-2014

Indian Statistical Institute

MASTERS IN STATISTICS

Kolkata, India

2007 - 2009

Indian Statistical Institute

BACHELOR'S IN STATISTICS

Kolkata, India

2004 - 2007

Professional Experience

2017-2023 **Assistant Professor**, University of Illinois at Urbana Champaign

2015-2017 **William Kruskal Instructor**, Department of Statistics, University of Chicago, Advised by Dr. John Lafferty.

2014-2015 **Postdoctoral Research Scholar**, Department of Statistics, University of Chicago, Advised by Dr. John Lafferty.

2011-2013 **Graduate Teaching Assistant**, Department of Statistics and Data Science, Yale University

Publications

PUBLISHED

A. Chaudhuri and **S. Chatterjee**, A Cross Validation Framework for Signal Denoising with Applications to Trend Filtering, Dyadic CART and Beyond. To appear in Annals of Statistics.

S. Chatterjee and S. Goswami, Spatially Adaptive Online Prediction of Piecewise Regular Functions. To appear in Proceedings of Machine Learning Research.

T. Zhang and **S. Chatterjee**, Element-wise Estimation Error of Generalized Fused Lasso. To Appear in Bernoulli.

Y. Yu, **S. Chatterjee** and H. Xu, Localizing Change Points in Piecewise Polynomials of General Degrees, Electronic Journal of Statistics, Vol. 16, p. 1855 – 1890, 2022.

O. H. M. Padilla and **S. Chatterjee**, Risk Bounds for Quantile Trend Filtering, Biometrika, doi:10.1093/biomet/asab045, 2021.

S. Chatterjee and S. Goswami, Adaptive Estimation of Multivariate Piecewise Polynomials and Bounded Variation Functions by Optimal Decision Trees, Annals of Statistics, Vol. 49, p. 2531 – 2551, 2021.

S. Chatterjee and S. Goswami (2020), New Risk Bounds in 2D Total Variation Denoising, IEEE Transactions of Information Theory, Vol. 67, p. 4060 - 4091, 2021.

A. Guntuboyina, D. Lieu, **S. Chatterjee** and B. Sen, Adaptive Risk Bounds in Univariate Total Variation Denoising and Trend Filtering, Annals of Statistics, Vol. 48, p. 205 – 229, 2020.

S. Chatterjee and S. Mukherjee, Estimation in Tournaments and Graphs Under Monotonicity Constraints, IEEE Transactions on Information Theory, Vol. 65, Issue: 6, doi:10.1109/TIT.2019.2893911, 2019.

Q. Han, T. Wang, **S. Chatterjee** and R. Samworth, Isotonic Regression in General Dimensions, Annals of Statistics, Vol. 43, Number 5, p. 2440 – 2471, 2019.

S. Chatterjee and J. Lafferty, Adaptive Risk Bounds in Unimodal Regression, Bernoulli, Vol. 25, Number 1, p. 1 – 25, 2019.

- M. Bonakdarpour, **S. Chatterjee**, R. Barber, J. Lafferty, Prediction Rule Reshaping, 35th International Conference on Machine Learning (ICML 2018), 2018.
- S. Chatterjee** and J. Lafferty, Denoising Flows on Trees, IEEE Transactions on Information Theory, Vol. 64, Issue: 3, 2018.
- S. Chatterjee**, A. Guntuboyina and B. Sen, On Matrix Estimation Under Monotonicity Constraints, Bernoulli, Vol. 24, p. 1072 – 1100, 2018.
- Y. Zhu, **S. Chatterjee**, J. Duchi and J. Lafferty, Local Minimax Complexity of Stochastic Convex Optimization, Neural Information Processing Systems (NeurIPS 2016), p. 3423 – 3431, 2016.
- S. Chatterjee**, An Improved Global Risk Bound in Concave Regression, Electronic Journal of Statistics, 10.1, p. 1608 – 1629, 2016.
- S. Chatterjee**, A. Guntuboyina, and B. Sen, On Risk Bounds in Isotonic and Other Shape Restricted Regression Problems, Annals of Statistics, Vol. 43, p. 1774 – 1800, 2015.
- S. Chatterjee** and A. Barron, Information Theoretic Validity of Penalized Likelihood, 2014 IEEE International Symposium on Information Theory, ISIT 2014, p. 3027 – 3031, 2014.

IN REVIEW

- O. H. M. Padilla and **S. Chatterjee**, Quantile Regression by Dyadic CART. Available at <https://arxiv.org/pdf/2110.08665.pdf>.
- S. Chatterjee** and S. Sen, Regret Minimization in Isotonic, Heavy Tailed Contextual Bandits via Adaptive Confidence Bands. Available at <https://arxiv.org/pdf/2110.10245.pdf>.

Grants, Honors & Awards

2019-2023	Nonparametric Estimation Under Shape/Norm Constraints , National Science Foundation Department of Mathematical Sciences 1916375	\$ 160,000
Fall 2022	Rated Excellent Teacher , University of Illinois at Urbana Champaign	
Spring 2021	Rated Excellent Teacher , University of Illinois at Urbana Champaign	
Spring 2020	Rated Excellent Teacher , University of Illinois at Urbana Champaign	
2009	Sterling Fellowship Award , Yale University	
2007	National Board of Higher Mathematics Award , Government of India	

Presentations

INVITED TALKS

- “A Theoretically Tractable Framework for K Fold Cross Validation”, University of Pennsylvania, Wharton School of Statistics, April 2023.
- “A Theoretically Tractable Framework for K Fold Cross Validation”, University of California at Los Angeles, April 2023.
- “Locally Adaptive Online Prediction of Piecewise Polynomial Signals”, Algorithmic Learning Theory, Singapore, February 2023.
- “A Theoretically Tractable Framework for K Fold Cross Validation” Google Research, India, February 2023.
- “A Theoretically Tractable Framework for K Fold Cross Validation”, Tata Institute of Fundamental Research, Computer Science Department, Mumbai, February 2023.
- “A Theoretically Tractable Framework for K Fold Cross Validation”, Indian Institute of Technology, Mumbai, February 2023.
- “A Theoretically Tractable Framework for K Fold Cross Validation”, Indian Statistical Institute, January 2023.
- “Locally Adaptive Online Prediction of Piecewise Polynomial Signals via Sleeping Experts Aggregation over Rectangles”, International Indian Statistical Association, Bengaluru, December 2022.
- “Pointwise Bounds for Fused Lasso”, CM Statistics, Virtual Meeting, December 2022.
- “A Theoretically Tractable Framework for K Fold Cross Validation”, Ecolstat 2022, Virtual Meeting, June 2022.

“A Theoretically Tractable Framework for K Fold Cross Validation”, International Centre for Mathematical Sciences Workshop on Structural Breaks and Shape Constraints, Virtual Seminar, May 2022.

“A Theoretically Tractable Framework for K Fold Cross Validation”, UIUC Purdue Joint Seminar, April 2022.

“A Theoretically Tractable Framework for K Fold Cross Validation”, University of Washington, St. Louis, Mathematics Department, Virtual Seminar, February 2022.

“Dyadic CART: An alternative to Trend Filtering”, Joint Statistical Meetings, Virtual meeting, August 2021.

“Adaptive estimation of piecewise rectangular signals”, International Indian Statistical Association, Virtual Meeting, May 2021.

“Dyadic CART: An alternative to Trend Filtering”, CM Statistics, Virtual meeting, December 2020.

“Adaptive estimation of multivariate piecewise polynomials by optimal decision trees”, Joint Statistical Meetings, Virtual meeting, August 2020.

“Adaptive estimation by optimal decision trees”, International Indian Statistical Association, Mumbai, India, December 2019.

“Adaptive estimation of piecewise constant and bounded variation matrices by optimal decision trees”, CM Statistics, London, UK, December 2019

“Adaptive estimation of multivariate piecewise constant functions by Dyadic CART type methods”, Ecostat 2019, Taichung, Taiwan, June 2019

“Adaptive risk bounds in the nonparametric Bradley Terry model”, Business School in University of Miami, Miami, Florida, September 2018

“Adaptive risk bounds for 2D total variation denoising”, Statslab, Cambridge University, UK, June 2018

“Risk bounds for 2D total variation denoising”, International Indian Statistical Association, Gainesville, Florida, May 2018

“Risk bounds for 2D total variation denoising”, Newton Institute, UK, April 2018

“Isotonic regression in general dimensions”, Workshop on Shape Constrained Methods in Statistics, Banff, Canada, January 2018

“Estimation in tournaments and graphs under monotonicity constraints”, Workshop on Networks, Indian Statistical Institute, Kolkata, India, January 2018

“Isotonic regression in general dimensions”, Joint Statistical Meetings, Baltimore, Maryland, August 2017

“Adaptation in trend filtering”, IMS China, Nanning, China, June 2017

“Estimation of pairwise probabilities in tournaments under monotonicity constraints”, Statistics Department at University of Iowa, Iowa, September 2016

“Denoising flows on trees”, International Indian Statistical Association, Corvallis, Oregon, August 2016

“Estimation of pairwise probabilities in tournaments under monotonicity constraints”, Workshop on Shape Constrained Methods, Oberwolfach, Germany, July 2016

“Adaptive risk bounds in unimodal regression”, International Society of Nonparametric Statistics, Avignon, France, June 2016

Teaching Experience

Fall 2022	Introduction to Stochastic Processes , Undergraduate Level	<i>UIUC</i>
Fall 2022	Introduction to Online Learning Theory , Graduate Level	<i>UIUC</i>
Spring 2022	High Dimensional Probability , Graduate Level	<i>UIUC</i>
Fall 2021	STAT 433: Introduction to Stochastic Processes , Undergraduate Level	<i>UIUC</i>
Spring 2021	Empirical Process Theory and Weak Convergence , Graduate Level	<i>UIUC</i>
Fall 2020	Introduction to Statistics and Probability 2 , Undergraduate Level	<i>UIUC</i>
Spring 2020	Large Sample Theory , Graduate Level	<i>UIUC</i>
Fall 2019	Introduction to Statistics and Probability 1 , Undergraduate Level	<i>UIUC</i>
Spring 2019	Modern Statistical Estimation Theory , Graduate Level	<i>UIUC</i>
Fall 2018	Introduction to Stochastic Processes , Undergraduate Level	<i>UIUC</i>
Spring 2018	Mathematical Statistics , Graduate Level	<i>UIUC</i>
Fall 2017	STAT 433: Introduction to Statistics and Probability 1 , Undergraduate Level	<i>UIUC</i>

Mentoring

2016-2017	Undergraduate Name , Position, University
2014-2015	Undergraduate Name , Position, University
2014-2015	Undergraduate Name , Position, University

Outreach & Professional Development

SERVICE AND OUTREACH

2020	Blackwell Scholarship Program , Research Mentor	<i>UIUC</i>
2021	IMS Invited Session, “Trend Filtering and Related Nonparametric Regression Methods” , Joint Statistical Meetings , Organizer	<i>Virtual Meeting</i>
2021	IMS Invited Session, “Recent Advances in Trend Filtering and Related Methods” , International Indian Statistical Association , Organizer	<i>Virtual Meeting</i>
2022	IMS Invited Session, “Recent Advances in Online Methods, International Indian Statistical Association , Organizer	<i>Bangalore, India</i>

EDITORSHIP

I am currently an Associate Editor of Sankhya A.

PEER REVIEW

Annals of Statistics
IEEE Transactions of Information Theory
Bernoulli
Journal of American Statistical Association
Electronic Journal of Statistics
SIAM Journal of Mathematics of Data Science
Biometrika
Information and Inference
Mathematical Statistics and Learning
Journal of the Royal Statistical Society: Series B.

PROFESSIONAL MEMBERSHIPS

American Statistical Association

