

Miles E. Lopes

CONTACT INFORMATION	Department of Statistics Mathematical Sciences Building One Shields Avenue, UC Davis Davis, CA 95616 melopes@ucdavis.edu http://anson.ucdavis.edu/~melopes
ACADEMIC EMPLOYMENT	UC Davis Department of Statistics Associate Professor, 2021 - present Assistant Professor, 2015 - 2021
EDUCATION	UC Berkeley, 2009 - 2015 Ph.D. in Statistics, M.S. in Computer Science Thesis advisor: Peter J. Bickel UCLA, 2003 - 2008 B.S. in Mathematics, B.S. in Physics (summa cum laude, and highest departmental honors in Mathematics)
RESEARCH VISITS AND INTERNSHIPS	Google, Mountain View, summer 2014 INRIA, Grenoble, summer 2013 Sandia National Laboratory, Livermore, summer 2012
INTERESTS	High-dimensional Statistics and Machine Learning (bootstrap methods for high-dimensional data, and error analysis of randomized algorithms)
GRANTS, FELLOWSHIPS, AND AWARDS	<ul style="list-style-type: none">• DOE grant DE-SC0023490, co-PI, 2022 - present Reliable, Scalable, and Data-efficient Randomized Graph Neural Networks for Neural Combinatorial Optimization with Scientific Applications• NSF grant DMS-1915786, sole PI, 2019 - present Bootstrap Methods in Modern Settings: Inference and Computation• NSF grant DMS-1613218, sole PI, 2016 - 2020 Resampling Methods for High-Dimensional and Large-Scale Data• Laha Award, Institute of Mathematical Statistics, 2012• NSF Graduate Research Fellowship (GRFP), 2010 - 2015• DOE Computational Science Graduate Fellowship (CSGF), 2010 - 2014

- National Defense Science & Engineering Graduate Fellowship (NDSEG), 2010
(declined in order to accept CSGF and GRFP)
- Sherwood Prize, UCLA Department of Mathematics, 2008
(UCLA's highest graduation award for undergraduate mathematics)

RESEARCH

- Lopes, M. E., (2022+). Central limit theorem and bootstrap approximation in high dimensions: Near $1/\sqrt{n}$ rates via implicit smoothing. *to appear: Annals of Statistics*.
- Lopes, M. E., Erichson, N. B., Mahoney, M. W. (2022+). Bootstrapping the operator norm in high dimensions: Error estimation for covariance matrices and sketching. *to appear: Bernoulli*.
- Yao, J., Lopes, M. E. (2022+). Rates of bootstrap approximation for eigenvalues in high-dimensional PCA. *to appear: Statistica Sinica*.
- Lin, Z., Lopes, M. E., Müller, H.-G. (2022+). High-dimensional MANOVA via bootstrapping and its application to functional data and sparse count data. *to appear: Journal of the American Statistical Association*.
- Lopes, M. E., Yao, J. (2022). A sharp lower-tail bound for Gaussian maxima with application to bootstrap methods in high dimensions. *Electronic Journal of Statistics*, 16(1), 58-83.
- Lopes, M. E., Wu, S., Lee, T. C. M. (2020). Measuring the algorithmic convergence of randomized ensembles: The regression setting. *SIAM Journal on Mathematics of Data Science*, 2(4), 921-943.
- Chen, X., Lopes, M. E. (2020). Error estimation for randomized Newton methods: A bootstrap approach. In *International Conference on Machine Learning (ICML)*.
- Lopes, M. E., Erichson, N. B., Mahoney, M. W. (2020). Error estimation for sketched SVD via the bootstrap. In *International Conference on Machine Learning (ICML)*.
- Lopes, M. E., Lin, Z., Müller, H. G. (2020). Bootstrapping max statistics in high dimensions: Near-parametric rates under weak variance decay and application to functional and multinomial data. *The Annals of Statistics*, 48(2), 1214-1229.
- Lopes, M. E. (2020). Estimating a sharp convergence bound for randomized ensembles. *Journal of Statistical Planning and Inference*, 204, 35-44.
- Lopes, M. E., Blandino, A., Aue, A. (2019). Bootstrapping spectral statistics in high dimensions. *Biometrika*, 106(4), 781-801.
- Lopes, M. E., Wang, S., Mahoney, M. W. (2019). A bootstrap method for error estimation in randomized matrix multiplication. *Journal of Machine Learning Research*, 20(39), 1-40.

- Lopes, M. E. (2019). Estimating the algorithmic variance of randomized ensembles via the bootstrap. *The Annals of Statistics*, 47(2), 1088-1112.
- Lopes, M. E., Wang, S., Mahoney, M. W. (2018). Error estimation for randomized least-squares algorithms via the bootstrap. In *International Conference on Machine Learning (ICML)* (pp. 3217-3226, and included as a ‘long talk’ among the top 8.6% of submissions).
- Lopes, M. E. (2016). Unknown sparsity in compressed sensing: Denoising and inference. *IEEE Transactions on Information Theory*, 62(9), 5145-5166.
- Lopes, M. E. (2014). A residual bootstrap for high-dimensional regression with near low-rank designs. In *Advances in Neural Information Processing Systems (NeurIPS)* (pp. 3239-3247, and included as a ‘spotlight presentation’ among the top 4.8% of submissions).
- Lopes, M. E. (2013). Estimating unknown sparsity in compressed sensing. In *International Conference on Machine Learning (ICML)* (pp. 217-225).
- Lopes, M. E., Jacob, L., Wainwright, M. J. (2011). A more powerful two-sample test in high dimensions using random projection. In *Advances in Neural Information Processing Systems (NeurIPS)* (pp. 1206-1214).

PROFESSIONAL
ACTIVITIES

- Associate Editor: *Electronic Journal of Statistics*, 2022 - present
- Associate Editor: *Sankhya Series A*, 2022 - present
- Writing committee member: DOE Office of Science report on “Randomized Algorithms for Scientific Computing (RASC): Foundational Research in Advanced AI for Science”, 2021
- NSF DMS review panelist: 2017, 2020
- Organizer: CMStatistics, invited session (2022), Joint Statistical Meetings topic contributed session (2019), Joint Statistical meetings, invited session (2016).
- Referee: *Annals of Applied Probability*, *Annals of Statistics*, *Applied and Computational Harmonic Analysis*, *Biometrika*, *Canadian Journal of Statistics*, *IEEE Transactions on Information Theory*, *IEEE Transactions on Signal Processing*, *Journal of Computational and Graphical Statistics*, *Journal of Machine Learning Research*, *Journal of Multivariate Analysis*, *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society, Series B*, *Journal of Statistical Planning and Inference*, *Metrika*, *SIAM Journal on Mathematics of Data Science*

PHD
STUDENT
ADVISING

Andrew Blandino, 2018 - 2021 | Statistician, UC Davis Statistical Laboratory
Siyao Wang, 2021 - present
Junwen Yao, 2018 - present

UNDERGRADUATE
RESEARCH
ADVISING

Nianlin Chen, 2020 | MS student, University of Michigan Applied Statistics
Edie Espejo, 2016 | PhD student, UC Berkeley Biostatistics
Carmen Lai, 2016 | KPMG
Wenxuan (Allan) Zhao, 2019 | PhD student, UW Madison Computer Science

TEACHING

- STA 130A, undergraduate mathematical statistics (fall 2015, 2016, 2017, 2019, 2020)
- STA 130B, undergraduate mathematical statistics (winter 2017)
- STA 200A, MS probability (fall 2016, 2017, 2018, 2019, 2020, 2021)
- STA 231C, PhD mathematical statistics (spring 2018, 2019, 2020, 2021, 2022)
- STA 251, PhD topics course in high-dimensional statistics (winter 2016)
- STA 290, department seminar (winter 2017, fall 2019)

DEPARTMENT SERVICE COMMITTEES

- Departmental diversity, equity, and inclusion committee, 2021
- Graduate program review, 2020
- PhD admissions, 2019-2020
- MS advising, 2017-2018, 2018-2019, 2019-2020
- MS written exam, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021
- Undergraduate matters, 2018-2019, 2019-2020
- Undergraduate Machine Learning courses, 2018-2019
- Undergraduate policy committee (chair), 2018-2019
- Visiting assistant professor search, 2018-2019
- College assembly representative, 2017-2018
- Faculty search, 2016-2017
- MS Machine Learning track, 2016
- 15 active or completed dissertation committees

SELECTED PRESENTA- TIONS AND PROGRAMS

- EcoSta Conference, Kyoto, 2022, invited talk
- International Symposium on Nonparametric Statistics (ISNPS), Paphos, 2022
- CMStatistics Conference, London, 2021, invited talk
- USC, Statistics Group Seminar, 2021, invited talk
- UIUC, Statistics Department Seminar, 2021, invited talk
- Rutgers, Statistics Department Seminar, 2021, invited talk
- DOE RASC Workshop on Randomized Algorithms, 2020, invited tutorial
- CMStatistics, London, 2020, invited talk
- International Conference on Machine Learning (ICML), 2020, accepted paper talk

- ASA Conference on Statistical Learning and Data Science (SLDS), Irvine, 2020, invited talk (canceled due to COVID 19)
- UC Berkeley Biostatistics Seminar, 2020, invited talk
- Conference on Information Systems and Sciences, Princeton, 2020, invited talk (canceled due to COVID 19)
- Random Matrices and Data Analysis Workshop, Shanghai, 2019, invited talk
- CMStatistics Conference, London, 2019, invited talk
- Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers, 2019, invited talk
- Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI), St. Louis, 2019, invited talk
- JSM, Denver, 2019, invited talk in topic-contributed session
- Banff International Research Station (BIRS) Workshop, 2019, invited talk
- Caltech, Applied Mathematics Seminar, 2019, invited talk
- CMStatistics Conference, Pisa, 2018, invited talk
- NC State, Statistics Department Colloquium, 2018, invited talk
- Western Section Meeting of the American Mathematical Society (AMS), San Francisco, 2018, invited talk
- Simons Institute, Program on Randomized Numerical Linear Algebra, Berkeley, 2018, invited talk
- SIAM Annual Meeting, Portland, 2018, invited talk
- International Conference on Econometrics and Statistics (ECOSTA), Hong Kong, 2018, invited talk
- International Indian Statistical Association (IISA) Conference, Gainesville, 2018, invited talk
- UC Davis, Economics Department Seminar, 2018, invited talk
- IMS Pacific Rim Meeting, Singapore, 2018, invited talk
- Banff International Research Station (BIRS), 2018, invited participant
- University of Florida, Statistics Department Seminar, 2017, invited talk
- Duke Fuqua School of Business, Decision Sciences Seminar, 2017, invited talk
- IMS-China International Conference, Nanning, 2017, invited talk
- UC Riverside, Statistics Department Seminar, 2017, invited talk
- University of Georgia, Statistics Department Seminar, 2017, invited talk

- Neural Information Processing Systems (NeurIPS) Conference, Barcelona, 2016, workshop paper talk
- UC Davis, Computer Science Department Colloquium, 2016, invited talk
- International Indian Statistical Association (IISA) Conference, Corvallis, 2016, invited talk
- JSM, Chicago, 2016, invited session talk
- University of Michigan, Statistics Department Seminar, 2014, invited talk
- UC Davis, Statistics Department Seminar, 2014, invited talk
- UC San Diego, Mathematics Department Seminar, 2014, invited talk
- Neural Information Processing Systems (NeurIPS) Conference, Montreal, 2014, accepted paper spotlight talk