Simon Foucart
Curriculum Vitae

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Primary Positions

2019-	Professor of Mathematics, Texas A&M University, College Station
2015-19	Associate Professor of Mathematics, Texas A&M University, College Station
2013-15	Assistant Professor of Mathematics, University of Georgia, Athens
2010-13	Assistant Professor of Mathematics, Drexel University, Philadelphia
2009-10	Postdoctoral Researcher, Université Pierre et Marie Curie, Paris, France
2006-09	Assistant Professor of Mathematics (NTT), Vanderbilt University, Nashville

Secondary Commitments

2021-	TAMIDS Associate Director for External Academic Engagement Texas A&M Institute of Data Science
2022-	CAMDA Director Center for Approximation and Mathematical Data Analytics

Visiting Positions

2023	Visiting Researcher (Jul), Los Alamos National Laboratory
2019	Visiting Researcher (Jan-May), Wisconsin Institute for Discovery, UW–Madison
2018	Visiting Researcher (Jun), LAAS-CNRS, Toulouse, France
2017	Visiting Researcher (Dec), Hong Kong University of Science and Technology, Hong Kong
2015	Visiting Researcher (May-Jun), University of South Florida, Tampa
2009	Visiting Researcher (Jul-Aug), University of Bonn, Germany

Academic Training

2001-05	PhD in Math (Numerical Analysis group)	University of Cambridge, U.K.
2000-01	Part III of Math Tripos (with distinction)	University of Cambridge, U.K.
1998-01	Masters of Engineering	Ecole Centrale Paris, France
1998-99	Licence de Mathématiques	Université Pierre et Marie Curie, Paris, France

Honors and Awards

2024	*Heilbronn Distinguished Visiting Fellowship* (July), Isaac Newton Institute, Cambridge, U.K.
2019	*Presidential Impact Fellow*, Texas A&M University
2012	*Antelo Devereux Award for Young Faculty*, Drexel University
2010	*Journal of Complexity* Best Paper Award
2000-04	Various scholarships received at the University of Cambridge (Dept of Applied Math and Theoretical Physics; Trinity Hall; Cambridge European Trust)
2001	Scholar of Trinity Hall, added to the College Register

Research Interests

Mathematical Data Science; Compressive Sensing; Approximation Theory; Computational Mathematics; Bioinformatics

External Funding

2023   NSF; co-PI, PI: S. Wojtowytsch (TAMU Math); $35,200
   Conference: Inaugural CAMDA Conference
2021-24   NSF; sole PI; $149,783
   CDS&E-MSS: Optimal Recovery in the age of Data Science
2020-23   ONR; local CoPI, local PI: R. DeVore (TAMU Math); $883,622; Lead: Rice University
   MURI: Theoretical foundations of Deep Learning
2019-22   NSF; senior personnel (executive committee), PI: B. Mallick (TAMU Statistics); $1,416,522
   TRIPODS: Texas A&M Research Institute for Foundations of Interdisciplinary Data Science
2018-21   NSF; coPI, PI: D. Koslicki (Oregon State Math), coPI: I. Ivanov (TAMU Vet Med); $292,041
   QuBBD: Fast, efficient mathematical approach to the analysis of the human microbiome through biodiversity optimization
2016-19   NSF; sole PI; $99,535
   CDS&E-MSS: Recovery of high-dimensional structured functions
2011-15   NSF; PI, coPIs: G. Rosen (Drexel Engineering), L. P. Tabb (Drexel Biostatistics); $666,322
   ATD: Improving analysis of microbial mixtures through sparse reconstruction and statistical inference

Internal Funding

2023   Texas A&M ASCEND Initiative; coPI, PI: R. Arroyave (Engineering), $464K
   TPT: Foundations of Autonomous Materials Discovery
2023   Texas A&M University System National Laboratories Office, $32K
   Development fellowship to strengthen collaborations with Los Alamos National Laboratory
2022   College of Arts and Sciences; coPI, PI: T. Logan (Atmospheric Sciences), $10K
   Seed Grant Promoting Research Collaborations: Do HLMA data contain evidence of space lightning?
2022   Texas A&M University System National Laboratories Office, $1.5K
   Exploration minigrant to initiate collaborations with Los Alamos National Laboratory
2021   Texas A&M Institute of Data Science, $15K
   TAMIDS Course Development Grant for *MATH 664: Topics in Mathematical Data Science*
2021-22   Texas A&M; PI, CoPI: R. Tuo (Engineering), S. Shahrampour (now at Northeastern), $30K
   T3 Triads: Learning more efficiently with less labels
2019-20   Texas A&M; coPI, PI: S. Shahrampour (Engineering), CoPI: B. Hanin (Math), $32,876
   T3 Triads: Trade-offs between approximation and generalization in learning systems

Publications

Books Authored

2. *Mathematical Pictures at a Data Science Exhibition.*
Cambridge University Press, 2022.

1. *A Mathematical Introduction to Compressive Sensing.*
Birkhäuser, Applied and Numerical Harmonic Analysis, 2013. With H. Rauhut.

Books Edited

1. *Explorations in the Mathematics of Data Science — The Inaugural Volume of the Center for Approximation and Mathematical Data Analytics.*
Birkhäuser, Applied and Numerical Harmonic Analysis, In production. With S. Wojtowytsch.

Surveys

1. *Flavors of Compressive Sensing.*
Approximation Theory XV: San Antonio 2016, Springer Proceedings in Mathematics & Statistics, vol 201, 61–104.

Refereed Journal Papers

53. *Radius of information for two intersected centered hyperellipsoids and implications in optimal recovery from inaccurate data.*
Journal of Complexity, to appear. With C. Liao.

52. *Near-optimal estimation of linear functionals with log-concave observation errors.*
Information and Inference, 12/4, 2546–2561, 2023. With G. Paouris.

51. *Full recovery from point values: an optimal algorithm for Chebyshev approximability prior.*
Advances in Computational Mathematics, 49, 57, 2023.

50. *The sparsity of LASSO-type minimizers.*
Applied and Computational Harmonic Analysis, 62, 441–452, 2023.

49. *On the value of the fifth maximal projection constant.*
Journal of Functional Analysis, 283/10, 109634, 2022. With B. Deregowska, M. Fickus, B. Lewandowska.

48. *On the sparsity of LASSO minimizers in sparse data recovery.*
Constructive Approximation, 57, 901–919, 2023. With E. Tadmor, M. Zhong.

47. *Optimal recovery from inaccurate data in Hilbert spaces: regularize, but what of the parameter?*
Constructive Approximation, 57, 489–520, 2023. With C. Liao.

46. *Learning from non-random data in Hilbert spaces: an optimal recovery perspective.*
Sampling Theory, Signal Processing, and Data Analysis, 20, 5, 2022. With C. Liao, S. Shahrampour, Y. Wang.

45. *Instances of computational optimal recovery: dealing with observation errors.*
SIAM/ASA Journal on Uncertainty Quantification, 9/4, 1438–1456, 2021. With M. Ettehad.

44. *Raconte-moi ... le Compressive Sensing.*
La Gazette des Mathématiciens, 168, 2021.

43. *Weighted matrix completion from non-random, non-uniform sampling patterns.*
IEEE Transactions on Information Theory, 67/2, 1264–1290, 2021. With D. Needell, R. Pathak, Y. Plan, M. Wootters.

42. *Nonlinear approximation and (deep) ReLU networks.*
Constructive Approximation, 55, 127–172, 2022. With I. Daubechies, R. DeVore, B. Hanin, G. Petrova.

41. *Instances of computational optimal recovery: refined approximability models.*
Journal of Complexity, 62, 101503, 2021.

40. *Facilitating OWL norm minimizations.*
Optimization Letters, 15/1, 263–269, 2021.

39. *Approximability models and optimal system identification.*
Mathematics of Control, Signals, and Systems, 32/1, 19–41, 2020. With M. Ettehad.

38. *Sampling schemes and recovery algorithms for functions of few coordinate variables.*
Journal of Complexity, 58, 101457, 2020.

37. *Jointly low-rank and bisparse recovery: questions and partial answers.*
 Analysis and Applications (special issue on Mathematics of Data Science), 18/1, 25–48, 2020. With R. Gribonval, L. Jacques, H. Rauhut.

36. *Computation of Chebyshev polynomials for union of intervals.*
 Computational Methods and Function Theory, 19/4, 625–641, 2019. With J. B. Lasserre.

35. *Optimal algorithms for computing average temperatures.*
 Mathematics of Climate and Weather Forecasting, 5, 34–44, 2019. With M. Hielsberg, G. Mullendore, G. Petrova, P. Wojtaszczyk.

34. *Iterative hard thresholding for low-rank recovery from rank-one projections.*
 Linear Algebra and its Applications, 572, 117–134, 2019. With S. Subramanian.

33. *Recovering low-rank matrices from binary measurements.*
 Inverse Problems and Imaging, 13/4, 703–720, 2019. With R. Lynch.

32. *Determining projection constants of univariate polynomial spaces.*
 Journal of Approximation Theory, 235, 74–91, 2018. With J. B. Lasserre.

31. *Computing a quantity of interest from observational data.*
 Constructive Approximation, 49/3, 461–508, 2019. With R. DeVore, G. Petrova, P. Wojtaszczyk.

30. *Sparse recovery from inaccurate saturated measurements.*
 Acta Applicandae Mathematicae, 158/1, 49–66, 2018. With J. Li.

29. *On the norms and minimal properties of de la Vallée Poussin's type operators.*
 Monatshefte für Mathematik, 185/4, 601–619, 2018. With B. Deregowska, B. Lewandowska, L. Skrzypek.

28. *Concave Mirsky inequality and low-rank recovery.*
 SIAM Journal on Matrix Analysis and Applications, 39/1, 99–103, 2018.

27. *An IHT algorithm for sparse recovery from subexponential measurements.*
 IEEE Signal Processing Letters, 24/9, 1280–1283, 2017. With G. Lecué.

26. *One-bit compressive sensing of dictionary-sparse signals.*
 Information and Inference, 7/1, 83–104, 2018. With R. Baraniuk, D. Needell, Y. Plan, M. Wootters.

25. *Exponential decay of reconstruction error from binary measurements of sparse signals.*
 IEEE Transactions on Information Theory, 63/6, 3368–3385, 2017. With R. Baraniuk, D. Needell, Y. Plan, and M. Wootters.

24. *On maximal relative projection constants.*
 Journal of Mathematical Analysis and Applications, 447/1, 309–328, 2017. With L. Skrzypek.

23. *Sparse recovery from saturated measurements.*
 Information and Inference, 6/2, 196–212, 2017. With T. Needham.

22. Basc*: constrained approximation by semidefinite programming.*
 IMA Journal of Numerical Analysis, 37/2, 1066–1085, 2017. With V. Powers.

21. *Hard thresholding pursuit algorithms: number of iterations.*
 Applied and Computational Harmonic Analysis, 41/2, 412–435, 2016. With J.-L. Bouchot, P. Hitczenko.

20. *Computation of minimal projections and extensions.*
 Numerical Functional Analysis and Optimization. 37/2, 159–185, 2016.

19. *Dictionary-sparse recovery via thresholding-based algorithms.*
 Journal of Fourier Analysis and Applications. 22/1, 6–19, 2016.

18. *Sparse disjointed recovery from noninflating measurements.*
 Applied and Computational Harmonic Analysis, 39/3, 558–567, 2015. With M. Minner, T. Needham.

17. *WSGQuikr: fast whole-genome shotgun metagenomic classification.*
 PLoS ONE, 9/3, e91784, 2014. With D. Koslicki, G. Rosen.

16. *Sparse recovery by means of nonnegative least squares.*
 IEEE Signal Processing Letters, 21/4, 498–502, 2014. With D. Koslicki.

15. *Quikr: a method for rapid reconstruction of bacterial communities via compressive sensing.*
  Bioinformatics, 29/17, 2096–2102, 2013. With D. Koslicki, G. Rosen.

14. *Generating dimension formulas for multivariate splines.*
  Albanian Journal of Mathematics, 7/1, 24–35, 2013. With T. Sorokina.

13. *Stability and robustness of ℓ_1-minimizations with Weibull matrices and redundant dictionaries.*
  Linear Algebra and its Applications, 441, 4–21, 2014.

12. *Hard thresholding pursuit: an algorithm for Compressive Sensing.*
  SIAM Journal on Numerical Analysis, 49/6, 2543–2563, 2011.

11. *The Gelfand widths of ℓ_p-balls for $0 < p \leq 1$.*
  Journal of Complexity, 26/6, 629–640, 2010. With A. Pajor, H. Rauhut, T. Ullrich.

10. *Real versus complex null space properties for sparse vector recovery.*
  Comptes Rendus de l'Académie des Sciences, 348, 863–865, 2010. With R. Gribonval.

9. *A note on guaranteed sparse recovery via ℓ_1-minimization.*
  Applied and Computational Harmonic Analysis, 29/1, 97–103, 2010.

8. *Sparse recovery with pre-Gaussian random matrices.*
  Studia Mathematica, 200, 91–102, 2010. With M.-J. Lai.

7. *Allometry constants of finite-dimensional spaces: theory and computations.*
  Numerische Mathematik, 112/4, 535–564, 2009.

6. *Sparsest solutions of underdetermined linear systems via ℓ_q-minimization for $0 < q \leq 1$.*
  Applied and Computational Harmonic Analysis, 26/3, 395–407, 2009. With M.-J. Lai.

5. *Open questions around the spline orthoprojector.*
  East Journal on Approximations, 14/2, 241–253, 2008.

4. *On the exact constant in Jackson–Stechkin inequality for the uniform metric.*
  Constructive Approximation, 29/2, 157–179, 2009. With Yu. Kryakin, A. Shadrin.

3. *On the value of the max-norm of the orthogonal projector onto splines with multiple knots.*
  Journal of Approximation Theory, 140/2, 154–177, 2006.

2. *Interlacing property for B-splines.*
  Journal of Approximation Theory, 135/1, 1–21, 2005.

1. *On the best conditioned bases of quadratic polynomials.*
  Journal of Approximation Theory, 130/1, 46–56, 2004.

Refereed Proceedings Papers and Book Chapters

12. *Linearly embedding sparse vectors from ℓ_2 to ℓ_1 via deterministic dimension-reducing maps.*
  In: Explorations in the Mathematics of Data Science. Birkhäuser, To appear.

11. *S-procedure relaxation: a case of exactness involving Chebyshev centers.*
  In: Explorations in the Mathematics of Data Science. Birkhäuser, To appear. With C. Liao.

10. *On the optimal recovery of graph signals.*
  SampTA 2023, New Haven. With C. Liao, N. Veldt.

9. *Finer metagenomic reconstruction via biodiversity optimization.*
  NeurIPS 2020, Vancouver (online). With D. Koslicki.

8. *One-bit sensing of low-rank and bisparse matrices.*
  SampTA 2019, Bordeaux. With L. Jacques.

7. *De-biasing low-rank projection for matrix completion.*
  SPIE Optics and Photonics, San Diego 2017. With D. Needell, Y. Plan, M. Wootters.

6. *Complexity of multivariate problems based on binary information.*
  SampTA 2017, Tallinn.

5. *Stability and robustness of weak orthogonal matching pursuits.*
In: Recent Advances in Harmonic Analysis and Applications, Springer Proceedings in Mathematics & Statistics, vol 25, 395–405.

4. *Recovering jointly sparse vectors via hard thresholding pursuit.*
SampTA 2011, Singapore.

3. *Recovery of functions of many variables via compressive sensing.*
SampTA 2011, Singapore. With A. Cohen, R. DeVore, H. Rauhut.

2. *Sparse recovery algorithms: sufficient conditions in terms of restricted isometry constants.*
In: Approximation Theory XIII: San Antonio 2010, Springer Proceedings in Mathematics, vol 13, 65–77.

1. *Some comments on the comparison between condition numbers and projection constants.*
In: Approximation Theory XII: San Antonio 2007, Nashboro Press, 143–156.

Working Papers

3. *A survey on minimal projections.*
In preparation. With L. Skrzypek.

2. *Optimization-aided construction of multivariate Chebyshev polynomials.*
In preparation. With M. Dressler, E. de Klerk, M. Joldes, J. B. Lasserre, Y. Xu.

1. *Worst-case learning under a multifidelity model.*
In preparation. With N. Hengartner.

Not for Publication

3. *Three topics in multivariate spline theory.*

2. *Symbolic spline computations.*
With P. Clarke.

1. *On the Hermite spline conjecture and its connection to k-monotone densities.*
With F. Balabdaoui, J. Wellner.

Theses

PhD Dissertation   *Small-normed projections onto polynomial and spline spaces.*
Part III Essay   *On definitions of discrete topological chaos and their relations on intervals.*

Oral Presentations

Popular Talks

1. *Compressive Sensing: Making the most of few measurements.* Drexel University, Dean's seminar, 20 Apr 2011.

Plenary Addresses

• *TBA*, Approximation and Geometry in High-Dimensions, Banach Center, Bedlewo, Poland, 21-26 Sep 2025.

• *Semidefinite Programming Lending Three Hands to Approximation Theorists*, Function Spaces XIII, Poznan, Poland, 8-13 Jul 2024. Postponed from 2021 due to coronavirus.

• *Integrating Observation Errors in Optimal Recovery*, Focus program 'Data Science, Approximation Theory, and Harmonic Analysis', Fields Institute, Toronto, 9 May-10 Jun 2022. (Postponed from 2021 due to coronavirus.

• *Standard, One-Bit, and Saturated Compressive Sensing*, 4th international Traveling Workshop on Interactions between low-complexity data models and Sensing Techniques (iTWIST), Marseille, France, 21-23 Nov 2018.

- *Assimilating Data to Optimally Compute Quantities of Interest*, 7th International Conference on Computational Harmonic Analysis, Nashville, 14-18 May 2018.
- *Flavors of Compressive Sensing*, 15th International Conference on Approximation Theory, San Antonio, 22-26 May 2016.

Colloquia

- *Worst-Case Learning from Inaccurate Data and under Multifidelity Models*, California Institute of Technology, 8 April 2024.
- *A Trustworthy Learning Theory? The View from Optimal Recovery*, University at Albany, 29 Mar 2023.
- *Singular Flavors of Compressive Sensing*, Colorado State University, 10 Oct 2022.
- *Optimal Recovery under Approximability Models, with Applications*, Michigan State University, 3 Dec 2018.
- *Standard, One-Bit, and Saturated Compressive Sensing*, University of Houston, 12 Sep 2018.
- *Excursion into the Mathematics of Compressive Sensing*, Texas A&M University, 30 Jan 2015.
- *Sparse Recovery: an Overview Leading to ℓ_1-Minimizations from Weibull Measurements*, University of Georgia, 10 Dec 2012.
- *Compressive Sensing and Banach Space Geometry*, Drexel University, 26 May 2011.
- *Compressive Sensing and the Hard Thresholding Pursuit algorithm*, Towson University, 22 Apr 2011.
- *Recovery Algorithms in Compressive Sensing*, University of South Florida, 10 Dec 2010.
- *Compressive Sensing: the Optimization Approach*, Drexel University, 23 Apr 2009.
- *From Approximation Theory to Compressive Sampling via Banach Space Geometry—a Computational Tour*, University of Georgia, 5 Feb 2008, University of South Florida, 15 Feb 2008.

Short Courses

- *Flavors of Compressive Sensing*, Doctoral School of the 4th international Traveling Workshop on Interactions between low-complexity data models and Sensing Techniques (iTWIST), Marseille, France, 19-20 Nov 2018
- *The Fundamentals of Compressive Sensing*, as part of the HKUST–ICERM Visiting Fellow Program, Hong Kong University of Science and Technology, 6-22 Dec 2017.
- *Essentials of Compressive Sensing*, Winter School at the Trimester Program on 'Mathematics of Signal Processing', Hausdorff Research Institute, Bonn, Germany, 11-15 Jan 2016.
- *A Mathematical Overview of Compressive Sensing*, University of South Florida, 18-22 May 2015.
- *A Tutorial on Compressive Sensing*, CIMPA school on 'New Trends in Applied Harmonic Analysis: Sparse Representations, Compressed Sensing, and Multifractal Analysis', Mar del Plata, Argentina, 5-16 Aug 2013.
- *Les Mathématiques du Compressive Sensing — une Introduction*, Labotatoire Paul Painlevé, Université des Sciences et Technologies de Lille, France, 20-22 Mar 2013.

Invited Workshop and Conference Presentations

- *Worst-case learning from inaccurate data and under multifidelity models*, Workshop 'Multivariate Approximation, Discretization, and Sampling Recovery', Isaac Newton Institute, Cambridge, U.K., 15-19 Jul 2024.
- *Maximal projection constants and existence of maximal ETFs*, Workshop 'Recent Progress on Optimal Point Distributions and Related Fields', ICERM, Providence, 3-7 Jun 2024.
- *Three vignettes in computational optimal recovery*, Workshop 'Computational Harmonic Analysis and Data Science', Foundations of Computational Mathematics conference, Paris, France, 12-21 Jun 2023.

● *On the optimal recovery of graph signals*, Minisymposium 'Approximation Theory in Data Analysis and Deep Learning', International Conference on Approximation Theory and Beyond, Nashville, 15-18 May 2023. Postponed from 2020 due to coronavirus.

● *Connections between minimal projections and equiangular tight frames*, Special session 'Harmonic Analysis and its Applications to Signals and Information', AMS Central Meeting, Cincinnati, 15-16 Apr 2023.

● *Recovery from corrupted data: recent results for various models*, Special session 'Mathematics of Information', Pacific Rim Mathematical Association (PRIMA) Congress, Vancouver, Canada, 4-9 Dec 2022.

● *On LASSO-type regularizations and sparsity of their minimizers*, Minisymposium 'Greedy and sparse approximation', 10th International Conference on Curves and Surfaces, Arcachon, France, 20-24 Jun 2022.

● *Optimal recovery from inaccurate data in Hilbert spaces*, Workshop 'Mathematics of Data Science', Hausdorff Research Institute, Bonn, Germany, 25-29 Apr 2022.

● *Integrating observation errors in optimal recovery*, TAMIDS workshop 'Uncertainty Quantification: Theory Meets Practice', College Station, 5 Nov 2021.

● *Nonlinear approximation and (deep) ReLU networks*, Minisymposium 'Approximation theory of neural networks', SIAM Annual Meeting, Spokane (online), 19-23 Jul 2021.

● *Restricted isometry properties and their role in compressive sensing*, Online workshop 'High-dimensional covariance matrices, networks and concentration inequalities', 20-24 May 2021.

● *TBA*, 'Approximation and Geometry in High Dimensions' conference, Mathematical Research and Conference Center, Bedlewo, Poland, 16-22 Aug 2020. Postponed due to coronavirus.

● *Recovering low-rank matrices from binary measurements*, Special session 'Applications of Computational and Compressive Imaging', SIAM Conference on Imaging Science / SIAM Annual Meeting, Toronto, Canada, 6-10 Jul 2020. Canceled due to coronavirus.

● *TBA*, Workshop 'Computational Harmonic Analysis and Compressive Sensing', Foundations of Computational Mathematics conference, Vancouver, Canada, 15-24 Jun 2020. Canceled due to coronavirus.

● *Nonlinear approximation and (deep) ReLU networks*, Special session 'Mathematical Analysis in Data Science', Joint Mathematics Meetings, Denver, 15-18 Jan 2020.

● *Functions of few coordinate variables: sampling schemes and recovery algorithms*, Minisymposium 'Recent Advances in High-Dimensional Approximation', 2nd Annual Meeting of SIAM Texas-Louisiana, 1-3 Nov 2019.

● *Sparse recovery techniques in metagenomics*, Workshop 'Nonlinear Approximation', University of South Carolina, Columbia, 25-27 Oct 2019.

● *One-bit sensing of low-rank and bisparse matrices*, Special session 'Mathematical Theory of Quantization', 13th International Conference on Sampling Theory and Applications, Bordeaux, France, 8-12 Jul 2019.

● *Nonlinear approximation and (deep) ReLU networks*, 3rd International Conference on Mathematics of Data Science, Hong Kong, 19-23 Jun 2019.

● *Functions of few coordinate variables: sampling schemes and recovery algorithms*, Workshop 'Approximation, Sampling, and Compression in High Dimensional Problems', Isaac Newton Institute, Cambridge, U.K., 17-21 Jun 2019.

● *Approximability models and optimal system identification*, Minisymposium 'Theory and Algorithms for Improved Performance of Machine Learning in Scientific Applications', SIAM Conference on Computational Science and Engineering, Spokane, 25 Feb-1 Mar 2019.

● *Assimilating data to optimally compute quantities of interest*, Minisymposium 'Sparsity-Based Methods for High-Dimensional Approximation in Uncertainty Quantification', International Conference on Spectral and High Order Methods, London, U.K., 9-13 Jul 2018.

- *Semidefinite programming in approximation theory: two examples*, Workshop 'Numerical Analysis and Approximation Theory meet Data Science', Banff, Canada, 22-27 Apr 2018.
- *Assimilating data to optimally compute quantities of interest*, Texas A&M workshop 'Big Data – Data Driven Discovery', College Station, 20 Apr 2018.
- *The usefulness of a modified restricted isometry property*, 'February Fourier Talks', University of Maryland, 15-16 Feb 2018.
- *Computing a quantity of interest from observational data*, Special session 'Compressed Sensing and Machine Learning', Data Institute Conference, San Francisco, 15-17 Oct 2017.
- *Concave Mirsky inequality and low-rank recovery*, Minisymposium 'Compressed Sensing and Matrix Completion', 21st Meeting of the International Linear Algebra Society, Ames, 24-28 Jul 2017.
- *On maximal relative projection constants*, Summer Informal Regional Functional Analysis Seminar, College Station, 21-23 Jul 2017.
- *Computing a quantity of interest from observational data* and *The usefulness of a modified restricted isometry property*, Workshops on 'Approximation Theory' and on 'Computational Harmonic Analysis and Compressive Sensing', Foundations of Computational Mathematics conference, Barcelona, Spain, 10-19 Jul 2017.
- *Complexity of multivariate problems based on binary information*, Special session 'Mathematical Theory of Quantization', 12th International Conference on Sampling Theory and Applications, Tallinn, Estonia, 3-7 Jul 2017.
- *Computing a quantity of interest from observational data*, Workshop 'Data-Driven Model Reduction', College Station, 27 Apr 2017.
- *Computing a quantity of interest from observational data*, Workshop 'Multiscale and High-Dimensional Problems', Oberwolfach, Germany, 26 Mar-1 Apr 2017.
- *Computing a quantity of interest from observational data*, 1st International Conference on Mathematics of Data Science, Hong Kong, 20-24 Mar 2017.
- *Sparse recovery via nonconvex optimization, with application in metagenomics*, Special session 'Nonconvex and Non-Lipschitz Optimization', 5th International Conference on Continuous Optimization, Tokyo, Japan, 6-11 August 2016.
- *One-bit compressive sensing of dictionary-sparse signals*, Minisymposium 'Compressive Sensing: Approximation and Optimization', 15th International Conference on Approximation Theory, San Antonio, 22-26 May 2016.
- *Sparse recovery from saturated measurements*, Workshop on 'Challenges in High-Dimensional Analysis and Computation', San Servolo, Italy, 1-5 May 2016.
- *How* MATLAB *impacts my research*, Workshop 'Scientific Computing with MATLAB at Texas A&M', College Station, 25 Apr 2016.
- *Sparse recovery from saturated measurements*, Special session 'Trends in the Mathematics of Signal Processing and Imaging', Joint Mathematical Meetings, Seattle, 6-9 Jan 2016.
- *Exponentially decaying error rate in one-bit compressive sensing*, 'Information-based Complexity' conference, Mathematical Research and Conference Center, Bedlewo, Poland, 26 Apr-2 May 2015.
- *Dimensions of spline spaces, Dehn–Sommerville equations, and Schumaker's conjecture*, Workshop on 'Multivariate Splines and Algebraic Geometry', Oberwolfach, Germany, 19-25 Apr 2015.
- *Semidefinite programming for constrained approximation*, Special session 'Approximation Theory in Signal Processing and Computer Science', AMS Central Meeting, East Lansing, 13-15 Mar 2015.
- *Recovery of signals with sparse frame expansions*, Special session 'Frames and their Applications', Joint Mathematical Meetings, San Antonio, 10-13 Jan 2015.
- *Using semidefinite programming in Approximation Theory*, Workshop 'Approximation Theory', Foundations of Computational Mathematics conference, Montevideo, 11-20 Dec 2014.

- *Exponentially decaying error rate in one-bit compressive sensing*, Workshop 'Approximation, Integration, and Optimization', ICERM, Providence, 29 Sep-3 Oct 2014.
- *Exponentially decaying error rate in one-bit compressive sensing*, Minisymposium 'Mathematics of Information and Low Dimensional Models', SIAM Annual Meeting, Chicago, 7-11 Jul 2014.
- *Exponentially decaying reconstruction error in one-bit compressive sensing*, 5th International Conference on Computational Harmonic Analysis, Nashville, 19-23 May 2014.
- *New iterative algorithms in sparse approximation*, Special session 'Approximation Theory in Signal Processing', AMS Central Sectional Meeting, Lubbock, 11-13 Apr 2014.
- *A snapshot of iterative algorithms for sparse recovery*, Georgia Scientific Computing Symposium, Kennesaw State University, 22 Feb 2014.
- *Computing dimension formulas for multivariate spline spaces.* Minisymposium 'Multivariate Splines', 14th International Conference on Approximation Theory, San Antonio, 7-10 Apr 2013.
- *Stability and robustness of weak orthogonal matching pursuits.* Special session 'Models and Applications in Compressive Imaging', SIAM conference on Imaging Science, Philadelphia, 20-22 May 2012.
- *Stability and robustness of ℓ_1-minimizations with Weibull matrices and redundant dictionaries.* Workshop on 'Probabilistic Techniques and Algorithms', University of Texas, 6-8 Apr 2012.
- *Hard Thresholding Pursuit: an algorithm for Compressive Sensing* and *The dimension of trivariate spline spaces on Alfeld splits.* Special sessions 'Compressed Sensing' and 'Multivariate Splines', International Symposium in Approximation Theory, Nashville, 17-21 May 2011.
- *Recovering jointly sparse vectors via Hard Thresholding Pursuit.* Special session 'Sparse Approximation', 9th International Conference on Sampling Theory and Applications, Singapore, 2-6 May 2011.
- *Hard Thresholding Pursuit for sparse reconstruction.* Special session 'Sparse Data Representations and Applications', AMS Southeastern Meeting, Statesboro, 12-13 Mar 2011.
- *Compressive Sensing insight into the geometry of quasi-Banach spaces.* Workshop on 'Sparse and Low Rank Approximation', Banff, Canada, 6-11 Mar 2011.
- *Hard Thresholding Pursuit: an algorithm for Compressive Sensing.* Workshop on 'Wavelet and Multiscale Methods', Oberwolfach, Germany, 1-6 Aug 2010.
- *The Gelfand widths of ℓ_p-balls for $0 < p \leq 1$.* Minisymposium 'Sparse approximation', 7th International Conference on Curves and Surfaces, Avignon, France, 24-30 Jun 2010.
- *Best sufficient conditions for sparse recovery.* Minisymposium 'Compressive Sensing', 13th International Conference on Approximation Theory, San Antonio, 7-10 Mar 2010.
- *Reconstructions parcimonieuses: réelle contre complexe.* Journée 'Approximation et Modélisation Géométrique' du groupe SMAI–AFA, Paris, France, 13 Nov 2009.
- *Minimisation ℓ_1 et Compressive Sensing.* 9th Mathias Seminar, Cannes, France, 15-16 Oct 2009.
- *Sparse recovery via ℓ_q-minimization for $0 < q \leq 1$.* Special session 'Sparse approximation and high-dimensional geometry', 8th International Conference on Sampling Theory and Applications, Marseille, France, 18-22 May 2009.
- *Best conditioned bases in connection with minimal projections.* Minisymposium 'Minimal projections', 12th International Conference on Approximation Theory, San Antonio, 4-8 Mar 2007.

Contributed Conference Presentations

- *Recovery from corrupted data: recent results for various models*, 9th workshop on High Dimensional Approximation (HDA), Canberra, Australia, 20-24 Feb 2023.
- *Refined approximability models in optimal recovery under uncertainty*, Signal, Image, Data, Algorithmic Geometry, Modeling, Approximation (SIGMA) workshop, Marseille, France, 30 Mar-3 Apr 2020. Canceled due to coronavirus.

- *Iterative hard thresholding for low-rank recovery from rank-one projections*, Signal Processing with Adaptive Sparse Structured Representations (SPARS) workshop, Toulouse, France 1-4 Jul 2019.
- *Determining projection constants of univariate polynomial spaces*, 16th International Conference on Approximation Theory, Nashville, 19-22 May 2019.
- *Quikr & WGSQuikr: Rapid bacterial community reconstruction via compressive sensing.* Workshop 'Recent Computational Advances in Metagenomics', 13th European Conference on Computational Biology, Strasbourg, France, 6-10 Sep 2014.
- *On the value of the max-norm of the orthogonal spline projection.* Constructive Theory of Functions, Varna, Bulgaria, 1-7 Jun 2005.
- *On the least condition number of a basis of quadratic polynomials.* Advances in Constructive Approximation, Nashville, 14-17 May 2003.

Seminars

- *TBA.* University of Passau, Germany, 18 Jun 2024.
- *Worst-case learning from inaccurate data and under multifidelity models.* University of Maryland, 26 Feb 2024.
- *A trustworthy learning theory? The view from optimal recovery.* RWTH Aachen University, Germany, 22 Jun 2023.
- *Nonstatistical learning theory: the view from optimal recovery.* Sydney Mathematical Research Institute seminar, University of Sydney, Australia, 2 Mar 2023.
- *Three uses of semidefinite programming in approximation theory.* One World Mathematics of INformation, Data, and Signals (1W-MINDS) seminar, inter-institutional and online, 12 Jan 2023.
- *Three uses of semidefinite programming in approximation theory.* Data Science seminar, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, 8 Nov 2022.
- *Standard, one-bit, and saturated compressive sensing* and *Integrating observation errors in optimal recovery.* Center for Nonlinear Studies, Los Alamos National Laboratory, 23–25 May 2022.
- *Integrating observation errors in optimal recovery.* Codes and Expansions (CodEx) seminar, pan-university and remote, 5 Apr 2022.
- *Integrating observation errors in optimal recovery.* Combinatorics and Probability seminar, University of California, Irvine, 9 Mar 2022.
- *Optimal recovery in the age of data science.* Computational and Applied Mathematics seminar, University of Tennessee, Knoxville (remotely), 24 Feb 2021.
- *Optimal recovery under approximability models, with applications.* Data Science seminar, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, 17 Sep 2019.
- *Sparse recovery techniques in metagenomics.* Computation and Informatics in Biology and Medicine (CIBM) seminar, University of Wisconsin, Madison, 29 Jan 2019.
- *Optimal recovery under approximability models, with applications.* Systems, Information, Learning, and Optimization (SILO) seminar, Wisconsin Institute for Discovery, Madison, 23 Jan 2019.
- *Standard, one-bit, and saturated Compressive Sensing.* Department of Industrial and Systems Engineering, Texas A&M University, 14 Sep 2018.
- *Semidefinite programming in approximation theory: two examples.* RWTH Aachen University, Germany, 17 Jul 2018.
- *Semidefinite programming in approximation theory: two examples.* Multidisciplinary Optimization Seminar in Toulouse, France, 28 May 2018.
- *Assimilating data to optimally compute quantities of interest.* Alan Turing Institute, London, U.K., 23 Mar 2018.
- *The usefulness of a modified restricted isometry property.* University of Oxford, U.K., 22 Mar 2018.

- *Optimal estimation and computation from data.* University of Maryland, 7 Nov 2017.
- *Computing a quantity of interest from observational data.* CUNY-Courant symbolic-numeric computing seminar, 19 Oct 2017.
- *The usefulness of a modified restricted isometry property.* Department of Electrical and Computer Engineering, Iowa State University, 25 Jul 2017.
- *Sparse recovery from binary or saturated measurements.* Department of Statistics and Biostatistics, Rutgers University, 28 Sep 2016.
- *Some extra structures in sparse recovery.* Department of Electrical and Computer Engineering, Texas A&M University, 23 Sep 2015.
- *Two extra structures in sparse recovery: nonnegativity and disjointedness.* Drexel University, 16 Oct 2014.
- *Classical and one-bit compressive sensing.* Kennesaw State University, 13 Nov 2013.
- *Iterative algorithms in compressive sensing.* INRIA Rennes, France, 28 Mar 2013, University of Cambridge, U.K., 19 Mar 2013.
- *ℓ_1-minimizations with Weibull matrices.* Wilks Seminar, Princeton Statistics Laboratory, 7 Dec 2012.
- *Schumaker's conjecture: do Bernstein operators induce P-matrices?* Drexel University, 9 Mar 2012.
- *Orthogonal matching pursuits in Compressive Sensing.* University of Bonn, Germany, 24 Nov 2011.
- *On the dimension of multivariate spline spaces.* Drexel University, 11 Nov 2011.
- *Compressive Sensing and the Hard Thresholding Pursuit algorithm.* University of Utah, 26 Sep 2011.
- *Recovering sparse vectors via Hard Thresholding Pursuit.* Johns Hopkins University, 17 Mar 2011.
- *Geometry of ℓ_1^n via Compressive Sensing.* VIGRE Seminar, University of Georgia, 15 Feb 2011.
- *Compressive Sensing and the Hard Thresholding Pursuit algorithm.* University of Maryland, 1 Dec 2010.
- *Some open problems in Approximation Theory.* Drexel University, 29 Oct 2010.
- *Sparse recoveries via Basis Pursuit and Hard Thresholding Pursuit.* Drexel University, 8 Oct 2010.
- *Variations around the RIP.* University of Bonn, Germany, 3 Jun 2010.
- *Basis pursuit with pre-Gaussian random matrices.* Université de Franche–Comté, Besançon, France, 26 Apr 2010.
- *Gelfand widths, pre-Gaussian random matrices, joint sparsity.* Vanderbilt University, 15 Mar 2010.
- *Randomness in Compressive Sensing.* Séminaire Parisien de Statistique, Paris, France, 11 Jan 2010.
- *Un condensé de Compressive Sensing.* Journée 40 ans du Laboratoire Jacques-Louis Lions, Paris, France, 18 Dec 2009.
- *Three topics in Compressive Sensing.* University of Cambridge, U.K., 29 Oct 2009.
- *Compressive sensing via ℓ_q-minimization for $0 < q \le 1$.* University of Edinburgh, U.K., 22 Oct 2009.
- *Reconstruction parcimonieuse par minimisation ℓ_q avec $0 < q \le 1$.* INRIA Rennes, France, 23 Jun 2009.
- *Sparse recovery via ℓ_q-minimization for $0 < q \le 1$.* Université Pierre et Marie Curie, Paris, France, 26 May 2009.
- *Compressed Sensing via nonconvex minimization.* Hausdorff Center, Bonn, Germany, 19 Dec 2008.
- *Condition numbers of finite-dimensional frames.* University of Georgia, 11 Oct 2007.
- *Condition numbers of finite-dimensional frames.* Vanderbilt University, 9 Oct 2007
- *The orthogonal projector onto splines—ongoing development.* Vanderbilt University, 19 Sep 2006.
- *Best conditioned bases and minimal projections.* University of Cambridge, U.K., 10 Jun 2004.
- *Some inheritance properties for Chebyshev-type spaces.* University of Cambridge, U.K., 20 Feb 2003.

Miscellaneous Conferences and Workshops

- Programme on 'Discretization and Recovery in High-Dimensional Spaces', Isaac Newton Institute, Cambridge, U.K., 1-26 Jul 2024. With a Heilbronn Distinguished Visiting Fellowship.
- Workshop on 'Applied Harmonic Analysis and Data Science', Oberwolfach, Germany, 21-26 Apr 2024.
- SQuaRE project 'Approximation Theory and Semidefinite Programming', AIM, 8-12 May 2023 (San Jose), 22-26 Mar 2021 (online). With M. Dressler, E. de Klerk, M. Joldes, J. B. Lasserre, Y. Xu.
- 'Field of Dreams' conference (organized by the Math Alliance), Institute for Mathematics and its Applications, Minneapolis, 4-6 Nov 2022.
- NSF Harnessing the Data Revolution PI meeting, Alexandria, 26-27 Oct 2022.
- SIAM Conference on 'Mathematics of Data Science', San Diego, 26-30 Sep 2022. Online attendance.
- Conference on 'Interactions between Uncertainty Quantification and Machine Learning', Clermont-Ferrand, France, 7-9 Jun 2022.
- Spring Meeting of the Academic Data Science Alliance, Irvine, 7-9 Mar 2022.
- Workshop on 'Computation and Learning in High Dimensions', Oberwolfach, Germany, 1-7 Aug 2021.
- Thematic Programme on 'Applied Functional Analysis and High-Dimensional Approximation', Erwin Schroedinger International Institute for Mathematics and Physics, Vienna, Austria, 19 Apr-28 May 2021. Canceled due to coronavirus.
- 'Neural Information Processing Systems' (NeurIPS) conference, Vancouver, Canada, 9-14 Dec 2019.
- Programme on 'Approximation, Sampling and Compression in Data Science', Isaac Newton Institute, Cambridge, U.K., 3 Jan-28 Jun 2019. With a Simons Foundation Fellowship (declined).
- Workshop on 'Applied Harmonic Analysis and Data Processing', Oberwolfach, Germany, 25-31 Mar 2018.
- SQuaRE project 'Developing the theory of 1-bit compressive sensing', AIM, 22-26 Aug 2016, 13-17 Jul 2015 (San Jose), 18-22 Nov 2013 (Palo Alto). With R. Baraniuk, D. Needell, Y. Plan, M. Wooters.
- Workshop on 'Optimization and Parsimonious Modeling', Institute for Mathematics and its Applications, Minneapolis, 25-29 Jan 2016.
- Trimester Program on 'Mathematics of Signal Processing', Hausdorff Research Institute, Bonn, Germany, 4 Jan-22 Apr 2016.
- Invited Research Fellow at the Semester Program on 'High-Dimensional Approximation', Institute for Computational and Experimental Research in Mathematics, Brown University, 8 Sept-5 Dec 2014.
- 2nd International Workshop on Compressed Sensing Applied to Radar, Bonn, Germany, 17-19 Sep 2013.
- Annual Meeting of the Canadian Applied and Industrial Mathematics Society, Quebec City, 16-20 Jun 2013.
- Workshop on 'Structure and Randomness in System Identification and Learning', Institute for Pure and Applied Mathematics, University of California at Los Angeles, 15-18 Jan 2013.
- DTRA/NSF/NGA Algorithm Workshop, San Diego, 26-29 Nov 2012.
- Workshop on 'Applied Harmonic Analysis and Sparse Approximation', Oberwolfach, Germany, 10-16 Jun 2012.
- Long Program on 'Mathematical and Computational Approaches in High-Throughput Genomics', Institute for Pure and Applied Mathematics, University of California at Los Angeles. Attending the workshop for the period 12 Sep-10 Oct 2011.
- Concentration week on 'Greedy Algorithms in Banach Spaces and Compressed Sensing', Texas A&M University, 18-22 Jul 2011.
- 'Foundations of Computational Mathematics' conference, Budapest, 4-14 Jul 2011.
- Trimester Program on 'Analysis and Numerics for High-Dimensional Problems', Hausdorff Research Institute, Bonn, Germany. Attending the workshops for the period 19 Jun-2 Jul 2011.

- 'February Fourier Talks' conference, University of Maryland, 17-18 Feb 2011.
- Workshop on 'High Dimensional Problems and Solutions', Paris, France, 21-22 Jun 2010.
- Workshop on 'Sparsity and Computation', Bonn, Germany, 7-11 Jun 2010.
- Workshop on 'Probability and Geometry in High Dimensions', Marne-la-Vallée, France, 17-21 May 2010.
- Fall School on 'Interactions between Compressed Sensing, Random Matrices, and High Dimensional Geometry', Marne-la-Vallée, France, 16-20 Nov 2009.
- Summer School on 'Theoretical Foundations and Numerical Methods for Sparse Recovery', Linz, Austria, 31 Aug-4 Sep 2009.
- Workshop on 'Nonlinear Approximation Techniques Using L_1', Texas A&M University, 16-18 May 2008.
- 10th SIAM Conference on Geometric Design and Computing, San Antonio, 4-8 Nov 2007.
- 6th International Conference on Curves and Surfaces, Avignon, France, 29 Jun-5 Jul 2006.

Teaching

- **Texas A&M University** (2015-). *Graduate courses:* Compressive Sensing, Topics in Mathematical Data Science, Foundations and Methods of Approximation, Mathematical Foundations for Data Science, Methods of Applied Mathematics I. *Undergraduate courses:* (Honors) Linear Algebra, Advanced Calculus I.
- **University of Georgia** (2013-15). *Graduate courses:* Compressive Sensing, *Undergraduate courses:* Calculus I for Science and Engineering, Calculus II for Science and Engineering.
- **Drexel University** (2010-13). *Graduate courses:* Linear Algebra and Matrix Analysis, Approximation Theory, Compressed Sensing, Mathematics of Genome Analysis. *Undergraduate courses:* Problem Solving for Math Competitions, Probability and Statistics II, Numerical Analysis II, Linear Algebra, Calculus I.
- **Vanderbilt University** (2006-09). *Graduate courses:* Compressed Sensing. *Undergraduate courses:* Introduction to Numerical Mathematics, Methods of Ordinary Differential Equations, Calculus I & III.
- **University of Cambridge**, U.K. (2003-05). Gave supervisions in Differential Equations, Probability, Numbers and Sets, Dynamics, Numerical Analysis.
- **Ecole Nationale de Commerce**, Paris, France (1999-00). Oral examiner in Mathematics, preparing students for the entrance examinations to the economic Grandes Ecoles.

Advisees

Postdocs	Josiah Park (Aug 2020-Dec 2022), now postdoc at Berkeley National Lab
	Richard G. Lynch (Aug 2016-Jun 2019), then Instr. Assi. Prof. at Texas A&M
	Jean-Luc Bouchot (Nov 2012-Aug 2014), then Assi. Prof. at BIT, China
	David Koslicki (Jan-Sep 2012), now Asso. Prof. at Penn State
PhD students	Thomas Winckelman (Aug 2023-)
	Chunyang Liao (Aug 2019-May 2023), then postdoc at UCLA
	Ryan Malthaner (Aug 2018-Aug 2021)
	Bolong Ma (Aug 2017-Aug 2021 AWOL)
	Srinivas Subramanian (Aug 2016-Oct 2023)
	Mahmood Ettehad (Aug 2016-Jul 2020), then postdoc at the IMA
	Michael Minner (Sep 2012-Mar 2016), now at Sandia National Lab
Graduate RAs	Tom Needham (Summer 2014), now Assi. Prof. at Florida State
	Vladlena Powers (Jan 2014-Jul 2014), then PhD student at Columbia
	Anchit Agarwal (Aug 2013-Jul 2014)
Undergrad RAs	Chase Colbert (May-Jun 2020), then Master's student at Texas A&M

Professional Services

Book Series Editor
- *Numerical Mathematics and Scientific Computation*, Oxford University Press (Jul 2023-)

Journal Editorial Boards
- *Journal of Approximation Theory* (Aug 2017-)
- *Sampling Theory, Signal Processing, and Data Analysis* (Jun 2020-)
- *Journal of Numerical Mathematics* (May 2021-)
- *Journal of Complexity* (Sep 2023-)
- *Surveys in Approximation Theory* (Sep 2023-)

Reviewing
- Refereed for *Journal of Fourier Analysis and Applications* (2024; 2019), *Information and Inference* (2024; 2016), *Sampling Theory, Signal Processing, and Data Analysis* (2024), *Numerical Algorithms* (2023), *Numerische Mathematik* (2023), *Constructive Approximation* (2022; 2021; 2018; 2015; 2012; twice in 2010), *Journal of Functional Analysis* (2022; 2021; 2016), *Journal of Approximation Theory* (2022; 2017; 2016; 2014; 2012; 2007), *Comptes Rendus Mathématique* (2022; 2020), *SIAM Journal on Applied Algebra and Geometry* (2022; 2019), *Linear Algebra and its Applications* (2022; 2012), *SIAM Journal on Optimization* (2022; 2015), *Applied and Computational Harmonic Analysis* (2022; 2021; 2019; twice in 2010), *SIAM Journal on Scientific Computing* (2021; 2020; 2015), *Optimization Letters* (2021), *Discrete & Computational Geometry* (2021), *EURASIP Journal on Advances in Signal Processing* (2021; 2011), *Bulletin of the Australian Mathematical Society* (2021), *IMA Journal of Numerical Analysis* (2020), *SIAM/ASA Journal on Uncertainty Quantification* (2020), *Operators and Matrices* (2020), *SIAM Journal on Mathematics of Data Science* (2019), *IEEE Transactions on Information Theory* (2019; 2018; 2013; twice in 2011; 2009; 2008), *Boletín de la Sociedad Matemática Mexicana* (2019), *Annals of Applied Probability* (2019), *Journal of Machine Learning Research* (2018), *Journal of Mathematical Analysis and Applications* (2017), *Advances in Computational Mathematics* (2017; 2013), *Michigan Mathematical Journal* (2017), *Monatshefte für Mathematik* (2016), *Inverse Problems* (2015), *Journal of Theoretical Biology* (2015), *SIAM Journal on Imaging Sciences* (2014), *Journal of Algebra* (2014), *IEEE Signal Processing Letters* (2014; 2013; 2009), *Digital Signal Processing* (2014), *Foundations of Computational Mathematics* (2013), *IEEE Transactions on Signal Processing* (twice in 2013; 2012), *Statistics and Probability Letters* (2013), *Mathematics of Computation* (2012), *SIAM Journal on Matrix Analysis and Applications* (2011), *International Journal of Mathematics and Mathematical Sciences* (2011), *Inverse Problems and Imaging* (2011), *Signal Processing* (2011), and *IEEE Journal of Selected Topics in Signal Processing* (twice in 2009)
- Various conferences (member of the technical program committee of SampTA 2019; refereed for NeurIPS 2020, iTWIST 2018, COLT 2018, SampTA 2017, AT 2016, SPARS 2015, SampTA 2015, ISIT 2015, CSA 2013, AT 2013, GRETSI 2013, SPARS 2013, SampTA 2013, CAMSAP 2011, AT 2010)
- Refereed books for Cambridge University Press (2020, 2018, 2016), a book proposal for SIAM (2017), and a research monograph for the Société Mathématique de France (2011)
- Refereed for the *Deutsche Forschungsgemeinschaft* (German equivalent of NSF, 2023, 2022), the *National Science Foundation* (2021,2019, 2017), the *Israel Science Foundation* (2020), the *Natural Sciences and Engineering Research Council of Canada* (2019), the *Nederlandse Organisatie voor Wetenschappelijk Onderzoek* (Dutch equivalent of NSF, 2019), the *Research Grants Council of Hong Kong* (2018, 2017, 2016, 2015), the *Fonds zur Förderung der wissenschaftlichen Forschung* (Austrian equivalent of NSF, 2013) and the *Agence Nationale de la Recherche* (French equivalent of NSF, 2010)
- Reviewer for *Mathematical Reviews* (wrote about 60 reviews since 2005)

Administrative Activities

- *Department committees*: *TAMU* – promotion and tenure (2023-), graduate (2019-22), executive (2017-19), postdoc (2015-17); *UGA* – personnel (2014-15), Cantrell lectures (2014); *Drexel* – graduate program (qualifying exam subcommittee 2010-13); tenure-track faculty hiring (2012-13); candidacy exams (three occurrences in Sept 2012); web page (2011-12); visiting faculty hiring (2010-11).

- *College and University committees*: *TAMU* – member of the Faculty Advisory Council for the College of Science (2020-22), member of the Faculty Advisory Committee for the Texas A&M Institute of Data Science (2020-21); *Drexel* – Task force on the future of computing at Drexel (2013); NSF graduate research fellowship program review (2011-13); panelist at the meeting on higher education in the U.K. organized by Drexel Study Abroad (May 2012); U.K. scholarship review (Marshall and Gates–Cambridge scholarships, 2011-2012).

Organization

2023	Co-organizer of the inaugural CAMDA conference
	College Station, 22-25 May
2023	Co-organizer of the minisymposium *Data Reduction, Approximation, and Computation*
	International Conference on Approximation Theory and Beyond, Nashville, 15-18 May
	Originally scheduled in 2020
2022	Organizer of the special session *Mathematics of Data Science*
	Conference on Advances in Data Science, College Station, 21-22 Oct
2019	Co-organizer of the week on *Randomness and Determinism in Compressive Data Acquisition*
	Workshop in Analysis and Probability, Texas A&M University, 22-26 July
2019	Co-organizer of the minisymposium *Neural Network Approximation*
	16th International Conference on Approximation Theory, Nashville, 19-22 May
2018	Coordinator of the SQuaRE project *Approximation Theory and Semidefinite Programming*
	American Institute of Mathematics, San Jose, one week per year for three years
2017	Co-organizer of the minisymposium *Compressed Sensing and Matrix Completion*
	21st Meeting of the International Linear Algebra Society, Iowa State University, 24-28 Jul
2016	Organizer of the minisymposium *Reconstruction Parcimonieuse (Compressive Sensing)*
	43rd Congrès National d'Analyse Numérique (CANUM), Obernai, France, 9-13 May
2015-21	Organizer of the reading seminar *Data Science and Compressive Sensing*
	Texas A&M University
2013-15	Coordinator of the *Applied Math Seminar*
	University of Georgia
2013	Organizer of the minisymposium *Compressive Sensing*
	14th International Conference on Approximation Theory, San Antonio, 7-10 Apr
2011-13	Organizer of the seminar *Compressive Sensing, Extensions, and Applications*
	Drexel University
2010	Organizer of the minisymposium *Compressive Sensing*
	13th International Conference on Approximation Theory, San Antonio, 7-10 Mar
2007-09	Coordinator of the *Computational Analysis Seminar*
	Vanderbilt University
2008	Co-organizer of the Shanks Workshop *Nonlinear Models in Sampling Theory*
	Vanderbilt University
2007	Co-organizer of the Shanks Workshop *An Advanced Tutorial in Compressed Sensing*
	Vanderbilt University
2007	Co-organizer of the 10th SIAM Conference on Geometric Design and Computing
	San Antonio, 4-8 Nov

Membership of Associations

- Life Member, American Mathematical Society
- Member, Society for Industrial and Applied Mathematics
- Member, Société Mathématique de France
- Member, Société de Mathématiques Appliquées et Industrielles
- Member, European Mathematical Society

Additional Information

Computer Skills

MATLAB, Python, Mathematica, Maple, R, Html, JavaScript.

Languages

French (native), German (basic), and Spanish (basic).

Miscellaneous Interests

- Team Handball: competition at pre-national and national levels in France and England.
- Gymnastics: trained at Forbach Academy (France, 1986-1990); former member of the Cambridge University Team (selected for the Varsity matches against Oxford, 2001 to 2005, winner in 2004).
- Trampolining: former member of the Cambridge University Team (selected for the Varsity matches against Oxford, 2001 and 2002).