

# Shuyang Ling

Courant Institute of Mathematical Sciences  
New York University  
251 Mercer Street, New York, NY 10012, USA

Email: [sling@cims.nyu.edu](mailto:sling@cims.nyu.edu)  
<https://www.cims.nyu.edu/~sling/>

**EMPLOYMENT**

- **Assistant Professor/Courant Instructor** Sep 2017 - Sep 2020  
Courant Institute of Mathematical Sciences  
Center for Data Science  
New York University, NY, USA

**EDUCATION**

- **Ph.D. in Applied Mathematics** Sep 2012 - Jun 2017  
**Advisor:** Prof. Thomas Strohmer  
University of California Davis, CA, USA
- **M.S. in Mathematics** Sep 2012 - Jun 2016  
University of California Davis, CA, USA
- **M.S. in Statistics** Sep 2015 - Jun 2016  
University of California Davis, CA, USA
- **B.S. in Mathematics and Applied Mathematics** Sep 2008 - Jun 2012  
Fudan University, Shanghai, China

**RESEARCH INTERESTS** Applied harmonic analysis, compressive sensing, convex and nonconvex optimization, probability, numerical analysis, machine learning.

**PUBLICATIONS**

1. **S. Ling** and T. Strohmer. Self-calibration and biconvex compressive sensing. *Inverse Problems*, Vol. 31(11): 115002, 2015. **(SIAM Student Paper Prize 2017)**
2. **S. Ling** and T. Strohmer. Blind deconvolution meets blind demixing: algorithms and performance bounds. *IEEE Transactions on Information Theory*, Vol.63, No.7, pp.4497 - 4520, Jul 2017.
3. **S. Ling**, and T. Strohmer. Self-calibration and bilinear inverse problems via linear least squares. *SIAM Journal on Imaging Sciences* 11-1 (2018), pp.252-292.
4. X. Li, **S. Ling**, T. Strohmer and K. Wei. Rapid, robust, and reliable blind deconvolution via nonconvex optimization. *arXiv:1606.04933*, 2016.  
To appear *Applied and Computational Harmonic Analysis*.
5. **S. Ling**, and T. Strohmer. Regularized gradient descent: a nonconvex recipe for fast joint blind deconvolution and demixing, *arXiv:1703.08642*, 2017.  
To appear *Information and Inference: A Journal of the IMA*.
6. Y. Li, X. Li, **S. Ling**, T. Strohmer, and K. Wei. When do birds of a feather flock together?  $k$ -means, proximity, and conic programming, *arXiv:1710.06008*, Preprint 2017. Submitted to *Mathematical Programming*.
7. **S. Ling** and T. Strohmer. Certifying global optimality of graph cuts via semidefinite relaxation: A performance guarantee for spectral clustering, *arXiv:1806.11429*, Preprint 2018.

## HONORS

1. AMS-Simons Travel Grant (\$4000 for two years) May 2018
2. Travel Awards, ICCHA 7, Vanderbilt University, TN May 2018
3. US Junior Oberwolfach Fellow Mar 2018
4. SIAM Student Paper Prize Jul 2017
5. SIAM Student Travel Award Jan 2017
6. NSF/ORAU Travel Award for the 4th Heidelberg Laureate Forum, Heidelberg, Germany Sep 2016
7. MPS Dean's Graduate Student Prize, UC Davis Jun 2016  
College award for a high scholarly achievement
8. Alice Leung Scholarship in Mathematics, UC Davis Jun 2016  
Department award for exceptional promise in mathematics
9. Departmental Fellowship, UC Davis Apr 2016
10. Travel Awards, Hausdorff Research Institute for Mathematics, Bonn, Germany Jan 2016
11. Oberwolfach Leibniz Graduate Student, Germany Aug 2015
12. Graduate Student Travel Award from Graduate Studies, UC Davis May 2015
13. Travel Awards, AMS Sectional Meetings, Lansing, MI Mar 2015
14. Travel Awards, ICCHA 5, Vanderbilt University, TN May 2014
15. Block Grant Fellowship in Mathematics, UC Davis, CA 2012-2014
16. National Scholarship (Awarded to top 1% students), Fudan University, Shanghai, China 2010, 2011

## PRESENTATIONS

### Invited Conference Talks:

1. Conference on Big Data and Information Analytics, Houston, TX Dec 2018
2. ICCHA 7, Nashville, TN May 2018
3. SIAM-SEA Conference, Chapel Hill, NC Mar 2018
4. Special Session on "Nonconvex Optimization", Asilomar, CA Nov 2017
5. The International Linear Algebra Society (ILAS 2017), Ames, IA Jul 2017
6. Foundation of Computational Mathematics (FOCM), Barcelona, Spain Jul 2017
7. SIAM Annual Meeting, Pittsburgh, PA Jul 2017
8. SampTA 2017, Tallin, Estonia Jul 2017
9. SIAM Conference on Optimization, Vancouver, Canada May 2017
10. Special Session on "Bilinear Inverse Problems", Asilomar, CA Nov 2016
11. Applied Harmonic Analysis, Massive Data Sets, Machine Learning, and Signal Processing, BIRS-Affiliated Mathematics Research Centre, Casa Matematica Oaxaca (CMO), Mexico Oct 2016
12. SIAM Minisymposium at Joint Mathematical Meeting, Seattle, WA Jan 2016
13. The 8th ICIAM, Beijing, China Aug 2015
14. SPARS 15, Cambridge, UK Jul 2015
15. IEEE Communication Theory Workshop 2015, Orange County, CA May 2015
16. American Mathematical Society Sectional Meetings, Lansing, MI Mar 2015
17. Bay Area Scientific Computing Day, Stanford University, CA Dec 2014

### Invited Seminar Talks:

1. Seminar at the Norbert Wiener Center, University of Maryland, MD Apr 2018
2. Seminar at CIMS, NYU, New York, NY Nov 2017
3. Seminar at Fudan University, Shanghai, China Sep 2016
4. Seminar at Technical University of Munich, Germany, Sep 2016
5. Seminar on Applied Mathematics, HKUST, Hong Kong Sep 2015

**Poster Presentations:**

1. ITA 2017 Graduation Day, San Diego, CA Feb 2017
2. The 4th Heidelberg Laureate Forum, Heidelberg, Germany Sep 2016
3. Workshop on Algorithms for Modern Massive Data Sets (MMDS), Berkeley, CA, USA Jun 2016
4. Advances in Mathematics of Signal Processing, Hausdorff Research Institute for Mathematics, Bonn, Germany Jan 2016

**PROFESSIONAL SERVICE**

**Reviewer for the following journals:**

1. Advances in Computational Mathematics
2. Applied and Computational Harmonic Analysis
3. IEEE Journal of Selected Topics in Signal Processing
4. IEEE Signal Processing Letters
5. IEEE Transactions on Computational Imaging
6. IEEE Transactions on Information Theory
7. IEEE Transactions on Signal Processing
8. IEEE Transactions on Wireless Communications
9. IEEE Wireless Communications Letters
10. Information and Inference: A Journal of the IMA
11. SIAM Journal on Imaging Sciences

**Reviewer for the following conferences:**

1. Sampta 2015, 2017
2. SPARS 2017
3. COLT 2018
4. LVA/ICA 2018

**TEACHING EXPERIENCE**

**Instructor:**

1. MATH-UA 0211: Math for Economics (Calculus, NYU) Fall 2018
2. DS-GA 1002: Probability and Statistics for Data Science Fall 2018
3. MATH-GA 2840: Graphs and Networks (Co-instruct with Prof. Afonso Bandeira) Spring 2018
4. MATH-UA 0211: Math for Economics (Calculus, NYU) Fall 2017
5. MAT 21C: Calculus for Science and Engineering (UC Davis) Summer 2013

**Teaching Assistant:**

1. MAT 280: Mathematical Foundations for Big Data Spring 2016
2. MAT 207B: Applied Mathematics (Graduate Level) Winter 2014
3. MAT 207A: Applied Mathematics (Graduate Level) Fall 2013

4. MAT 180: Mathematical Algorithms for AI and Big Data Analysis Spring 2017
5. MAT 185A: Complex Analysis Winter 2017
6. MAT 17C: Calculus for Bio-science Spring 2013
7. MAT 22A: Linear Algebra Winter 2013
8. MAT 22B: Ordinary Differential Equation Fall 2012

**PROGRAMMING SKILLS** Proficient in MATLAB, R; Experienced in Python, C++