

CHUNYANG LIAO

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EMPLOYMENT

July 2023 - Present Hedrick Assistant Adjunct Professor University of California, Los Angeles

ACADEMIC TRAINING

Sept 2018 - May 2023	Ph.D. Mathematics	Texas A&M University, US
Sept 2016 - May 2018	M.S. Mathematics	Texas A&M University, US
Sept 2012 - June 2016	B.S. Applied Mathematics	Dalian Maritime University, China

RESEARCH INTERESTS

Mathematics of Data Science, Approximation Theory, (Deep) Learning Theory

HONORS AND AWARDS

- 2022 Travel award, 5th Annual Meeting of the SIAM Texas-Louisiana Section, Houston, TX
- 2022 Travel award, Faraway Fourier Talk (FFT), College Park, MD
- 2022 SIAM student Travel Award for the SIAM Conference on Mathematical Data Science, San Diego, CA
- 2014 National Scholarship (top 2%), Ministry of Education of China
- 2013 National Scholarship (top 2%), Ministry of Education of China

PUBLICATIONS

Preprints

1. *S-procedure relaxation: a case of exactness involving Chebyshev centers.*
Submitted. With S. Foucart

Journal Publications

2. *Optimal Recovery from Inaccurate Data in Hilbert Spaces: Regularize, but what of the Parameter?*
Constructive Approximation. 57, 489–520, 2023. With S. Foucart
1. *Learning from Non-Random Data in Hilbert Spaces: An Optimal Recovery Perspective*
Sampling Theory, Signal Processing, and Data Analysis, 20, 5, 2022. With S. Foucart, S. Shahrampour, Y. Wang

Refereed Proceedings Papers

2. *On Optimal Recovery of Graph Signals.* 2023 International Conference on Sampling Theory and Applications (SampTA 2023). With S. Foucart and N. Veldt.

1. *A Communication-Efficient Distributed Gradient Clipping Algorithm for Training Deep Neural Networks*
In Advances in Neural Information Processing Systems 35, 2022 (NeurIPS 2022). With Mingrui Liu, Zhenxun Zhuang, and Yunwen Lei.

PhD Dissertation

- Optimal Recovery from Observational Data: Theory and Applications.

ORAL PRESENTATIONS

Invited Workshop and Conference Presentations

- *Optimal Recovery from inaccurate observations*. Special session 'Sparse signal learning and its applications in data science', 13th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Wilmington, North Carolina, May 31-June 4, 2023
- *Optimal Recovery from Inaccurate Data in Hilbert Spaces: Regularize, but what of the Parameter?* Minisymposium 'Data Reduction, Approximation, and Computation', International Conference on Approximation Theory and Beyond, Vanderbilt University, Nashville, Tennessee, May 15-18, 2023
- *Optimal Recovery from Inaccurate Data in Hilbert Spaces: Regularize, but what of the Parameter?* Minisymposium 'Recent Advances in Learning', 5th annual meeting of the SIAM TX-LA Section, Houston, Texas, Nov 4-6, 2022.
- *Optimal Recovery in Hilbert spaces from observational data*. 2022 Summer Informal Regional Functional Analysis Seminar (SUMIRFAS), Texas A&M University, College Station, July 29-31, 2022.

Contributed Conferences Presentations

- *On the optimal recovery of graph signals*. Contributed Talks, Sampling Theory and Applications Conference (SampTA 2023), New Haven, Connecticut, July 10-14, 2023
- *On the optimal recovery of graph signals*. Contributed Talks, Inaugural CAMDA Conference, College Station, Texas, May 22-25, 2023
- *Optimal Recovery from Inaccurate Data in Hilbert Spaces: Regularize, but what of the Parameter?*, SIAM Annual Meeting, Pittsburgh, Pennsylvania, July 11-15, 2022.

Seminars

- *Learning Theory from the View of Optimal Recovery*. online Level Set Meeting, UCLA, May 1, 2022.
- *Optimal Recovery in Hilbert spaces from observational data*. Applied Math Seminar, University of Georgia, Athens, Sept 13, 2022.
- *Optimal Recovery in Hilbert Spaces from Exact or Inaccurate data*. Center of Approximation and Mathematical Data Analytics (CAMDA) seminar, Texas A&M university, College Station, Feb 23, 2022

MISCELLANEOUS CONFERENCES & WORKSHOPS

Poster section:

- *Optimal Recovery from Inaccurate Data in Hilbert Spaces: Regularize, but what of the Parameter?*
 1. Texas A&M University TRIPODS Annual Data Science Conference, College Station, Texas, Oct 21-22 2022
 2. Faraway Fourier Talks 2022, University of Maryland, College Park, Maryland, Oct 6-7 2022
 3. SIAM Conference on Mathematics of Data Science (MDS22), San Diego, California, Sept 26-30 2022
 4. 4th annual meeting of the SIAM TX-LA Section, South Padre Island, Texas, Nov 5-7, 2021
- *Learning from Non-Random Data in Hilbert Spaces: An Optimal Recovery Perspective.* 3rd annual meeting of the SIAM TX-LA Section, College Station, Texas, October 16-18, 2020

Attendance:

- (hybrid) Focus Program on Data Science, Approximation Theory, and Harmonic Analysis, Fields Institute, Toronto, May 9-June 10, 2022
- (remote) SIAM Annual Meeting, Spokane, Washington, July 19-23 2021
- (remote) Workshop on the Theory of Overparameterized Machine Learning (TOPML), April 20-21 2021
- (remote) SIAM Conference on Mathematics of Data Science (MDS20), Cincinnati, Ohio, May 4-June 30 2020
- Conference on Advances in Data Science Theory, Methods and Computation, Texas A&M University, September 2019
- Concentration Week on Randomness and Determinism in Compressive Data Acquisition, College Station, Texas, July 2019
- 3rd Texas A&M Big Data Workshop-Data Driven Discovery, Texas A&M University, April 2018

Summer Schools:

- (hybrid) Institute for Foundations of Data Science (IFDS) Summer School, Madison, Wisconsin, July 26-30 2021
- (remote) Deep Learning Theory Summer School at Princeton, July 27 - Aug 4 2021
- (hybrid) Gene Golub SIAM Summer school, Muizenberg, South Africa, July 19-30 2021

TEACHING EXPERIENCE

Texas A&M University (2018 - 2023):

- Instructor, Applied analysis Qualifying Exam Preparation course (Summer 2022)
- Teaching Assistant, Topics in Mathematical Data Science (Spring 2022)
- Instructor of Record, Mathematics for Business and Social Sciences (Fall 2021)
- Teaching Assistant, Engineering Mathematics II (Spring 2021, Fall 2019)
- Teaching Assistant, Numerical Analysis (Fall 2020)

PROFESSIONAL SERVICES

Reviewing

- 2022 Sampling Theory, Signal Processing, and Data Analysis