

CHUNYANG LIAO

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EMPLOYMENT

Tenure-track Assistant Professor of Mathematics	Aug 2026 - Present
<i>Department of Mathematical Science, University of Arkansas</i>	Fayetteville, AR
Hedrick Assistant Adjunct Professor (Non-tenure track)	July 2023 - June 2026
<i>Department of Mathematics, University of California Los Angeles</i>	Los Angeles, CA

ACADEMIC TRAINING

Sept 2018 - May 2023	Ph.D. in Mathematics	Texas A&M University
Sept 2016 - May 2018	M.S. in Mathematics	Texas A&M University

RESEARCH INTERESTS

Approximation Theory; Scientific Machine Learning; Computational Mathematics; Mathematical Data Science

PUBLICATIONS

Preprints

5. *Kernel Methods for Learning Operators with Multiple Inputs and Outputs*. Submitted. With A.Weihs, J.Sun, and H.Schaeffer.
4. *Physics Informed Random Feature Neural Networks for Solving PDEs*. Submitted. With C.Chen and M.Zhong.
3. *Generating Public Health Responses using Survey-Augmented Large Language Models*. With L.Marciaga, T.Pham, J.Rezvani, A.Hyk, K.Mitsopoulos, R.Vardavas.
2. *Cauchy Random Features for Operator Learning in Sobolev Space*. Submitted. With D.Needell and H.Schaeffer.
1. *Differentially private random feature model*. Submitted. With D.Needell, H.Schaeffer, and A.Xue.

Publications

9. *On the Approximation of Koopman Eigenfunctions with Random Features*. Foundations of Data Science, 2026.
8. *LR-RaNN: Lipschitz Regularized Randomized Neural Networks for System Identification*.
In Proceedings of the 1st Conference on Topology, Algebra, and Geometry in Data Science (TAG-DS 2025), 2026.
7. *Solving partial differential equations with random feature models*.
Communications in Nonlinear Science and Numerical Simulation, 152, 109343, 2026.
6. *Radius of information for two intersected centered hyperellipsoids and implications in Optimal Recovery from inaccurate data*.
Journal of Complexity, 83, 101841, 2024. With S. Foucart.

5. *S-procedure relaxation: a case of exactness involving Chebyshev centers.*
Explorations in the Mathematics of Data Science, Birkhäuser, 2024. With S. Foucart.
4. *On Optimal Recovery of Graph Signals.* 2023 International Conference on Sampling Theory and Applications (SampTA 2023). With S. Foucart and N. Veldt.
3. *Optimal Recovery from Inaccurate Data in Hilbert Spaces: Regularize, but what of the Parameter?*
Constructive Approximation. 57, 489–520, 2023. With S. Foucart
2. *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
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.

TEACHING EXPERIENCE

University of Arkansas (2026-Now):

- Instructor, MATH 56303 Scientific Computation and Numerical Methods (Fall 2026)

University of California Los Angeles (2023-2026):

- Instructor, Python with Application I, (Fall 2023, Winter 2025, Summer 2025, Fall 2025, Winter 2026)
- Instructor, Python with Application II, (Winter 2024, Spring 2024, Fall 2024, Spring 2025, Spring 2026)
- Instructor, Machine Learning, (Summer 2024)

Texas A&M University (2018 - 2023):

- Instructor, Applied analysis Qualifying Exam Preparation course (Summer 2022)
- Instructor, Mathematics for Business and Social Sciences (Fall 2021)

MENTORING

Undergraduate Students:

- Minghao Wang (Fall 2025 - Summer 2026)
- Meichen Wan (Summer 2026 -)

Summer REU:

- Academic Mentor, Research in Industrial Project for Students (RIPS) Program 2024 at IPAM
Title: System Identification using Vector Fitting and Neural Networks.
Sponsors: Analog Device Inc.
- Research in Industrial Project for Students (RIPS) Program 2025 at IPAM.
Title: Leveraging Large Language Models (LLMs) to Enhance Survey Data. *Sponsors:* RAND Corporation

ORAL PRESENTATIONS

Invited Workshop and Conference Presentations

- *Physics Informed Random Feature Neural Networks for Solving PDEs*. Minisymposium ‘Modeling, Learning, and Control of Collective Biological Systems’, SIAM Conference on the Life Sciences 2026, Cleveland, Ohio, July 6-9, 2026.
- *Solving partial differential equations with random features*. AMS Special Session on Randomized Methods for Data Analysis. 2026 Joint Mathematics Meeting. Washington D.C., January 4-7, 2026.
- *Cauchy Random Features for Operator Learning in Sobolev Space*. SIAM Minisymposium on Approximation Theory. 2026 Joint Mathematics Meeting. Washington D.C., January 4-7, 2026.
- *Cauchy Random Features for Operator Learning in Sobolev Space*. The 10th Annual Meeting of SIAM Central States Section, University of Arkansas, Fayetteville, Arkansas, October 11-12, 2025
- *Solving partial differential equations with random features*. The 8th Annual Meeting of the SIAM Conference Texas-Louisiana Section, UT Austin, Texas, Sept 26-28, 2025
- *Radius of information for two intersected centered hyperellipsoids and implications in Optimal Recovery from inaccurate data*. SIAM CSE 2025, Fort Worth, March 3-8, 2025.
- *Cauchy Random Features for Operator Learning in Sobolev Space*. 7th Annual Meeting of the SIAM Conference Texas-Louisiana Section, Baylor University, Waco, Texas, October 11-13, 2024
- *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 Conference Presentations

- *Cauchy Random Features for Operator Learning in Sobolev Space*. Southern California Applied Mathematics Symposium (SOCAMS), UC Riverside, April 26, 2025.
- *On the optimal recovery of graph signals*. Sampling Theory and Applications Conference (SampTA 2023), New Haven, Connecticut, July 10-14, 2023
- *On the optimal recovery of graph signals*. 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

- *Radius of information for two intersected centered hyperellipsoids and implications in Optimal Recovery from inaccurate data.* Applied Math Seminar, University of Arkansas, April 17, 2024.
- *Radius of information for two intersected centered hyperellipsoids and implications in Optimal Recovery from inaccurate data.* Applied Math Seminar, UC Irvine, March 4, 2024.
- *Learning Theory from the View of Optimal Recovery.* Level Set Meeting, UCLA, May 1, 2023.
- *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

PROFESSIONAL SERVICES

Reviewing:

- SIAM Journal on Mathematics of Data Science (SIMODS), 2026
- Mathematics (2026)
- Sampling Theory and Applications Conference (SampTA), 2025
- The Annals of Applied Probability (2025)
- SIAM Journal of Numerical Analysis (2025)
- Journal of Applied Analysis and Computation (2025)
- Chaos: An Interdisciplinary Journal of Nonlinear Science (2025)
- Applied Science (2025)
- Sampling Theory, Signal Processing, and Data Analysis (2022)

Organization

- Co-organizer of the minisymposium *Approximation Theory and its Applications in Scientific Machine Learning*
The 10th Annual Meeting of SIAM Central States Section, University of Arkansas, Oct 11-12, 2025
- Co-organizer of the minisymposium *Recent Advances in Physics Informed Machine Learning*
The 9th Annual Meeting of SIAM TX-LA Section, Southern Methodist University, Oct 30-Nov 1, 2026
- Co-organizer of the minisymposium *Recent Advances in Scientific Machine Learning: Theory, Algorithms, and Applications*
Joint Mathematical Meetings, Chicago, IL, January 12-15, 2027.