Yuchen Xu

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University of California, Los Angeles
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EDUCATION

2018.08 - 2023.08 Ph.D. in Statistics & Data Science
Cornell University, Ithaca, NY

2014.09 - 2018.06 B.S. in Mathematics & Applied Mathematics, Zhiyuan Honored Program
Shanghai Jiao Tong University, Shanghai, China

Fall 2017 Research Intern Exchange
Center for Applied Mathematics, Cornell University, Ithaca, NY

August 2016 Summer Course on Partial Differential Equations
Hertford College, Oxford University, Oxford, UK

RESEARCH THEORY & METHODS

Time Series Analysis:
- Panel/High-dim time series
- (Hidden) Markov model
- Changepoints
- Blind Source Separation (BSS)

Multivariate Analysis:
- Joint matrix diagonalization
- Statistical computing
- Tensor decomposition
- Network/Spatial model

Image Analysis:
- Blob detection
- Ridge detection

RESEARCH APPLICATIONS

- Financial Econometrics
- Medical Images and Signals
- Nanoparticles
- Molecular Dynamics
- Geology
- Biology

ACADEMIC EMPLOYMENT

2023.09 - Present Postdoctoral Scholar
Department of Statistics & Data Science, University of California, Los Angeles
Advisor: Prof. George Michailidis

2019 - 2023 Graduate Research & Teaching Assistant
Department of Statistics & Data Science, Cornell University

RESEARCH EXPERIENCE

2023 - Present George Michailidis Group, UCLA
Advisor: Prof. George Michailidis
Tasks: Panel time series analysis, transfer learning.

2022 - Present Department of Surgery, Icahn School of Medicine at Mount Sinai Hospital
Advisor: Prof. David S. Matteson
Tasks: Predicting thyroid cancer recurrence, w/ Denise Lee, MD.

2021 - Present	Enterprise Heart Failure Program, New York-Presbyterian (NYP) Hospital	
	Advisor:	Prof. Martin Wells
	Tasks:	Heart failure inference using ECG data, w/ Edward F. Lin, MD.
2019 - 2024	Atomic-Level Structural Dynamics in Catalysts (ALSDC) Group	
	Advisor:	Prof. David S. Matteson
	Tasks:	Clustering nanoparticle structures, w/ Prof. Roberto Rivera; Extraction of TEM atomic columns, w/ Prof. Peter A. Crozier; Estimating transition rate matrices, w/ Prof. Mahmoud Moradi.
2018 - 2023	Matteson Lab, Cornell University	
	Advisor:	Prof. David S. Matteson
	Tasks:	Testing simultaneous diagonalizability.

PUBLICATIONS[1]

Peer Reviewed and Preprint Manuscripts

Xu,Y., Düker, M.-C., and Matteson, D. S., "Testing simultaneous diagonalizability," *Journal of the American Statistical Association*, vol. 119, no. 546, pp. 1513–1525, Apr. 2023. DOI: 10.1080/01621459.2023.2202435. [Online]. Available: https://doi.org/10.1080/01621459.2023.2202435.

Xu,Y. and Michailidis, G., "Joint Learning of Panel VAR Models with Low-Rank and Sparse Structure," *Under review*, Sep. 2025. DOI: 10.48550/ARXIV.2509.15402. [Online]. Available: https://doi.org/10.48550/ARXIV.2509.15402.

Xu,Y. and Michailidis, G., "Data-Secure Decoupled Transfer Learning from Heterogeneous Low-Rank and Sparse Panel VAR Models," *Under review*, Sep. 2025.

Xu,Y., Thomas, A. M., Crozier, P. A., and Matteson, D. S., "Dynamic Atomic Column Detection in Transmission Electron Microscopy Videos via Ridge Estimation," *IEEE Transactions on Image Processing*, vol. 34, pp. 1588–1601, Feb. 2025. DOI: 10.1109/TIP.2025.3543138. [Online]. Available: https://doi.org/10.1109/tip.2025.3543138,

- ***The First-Place Winner, Best Student Paper Competition Case Studies and Applications track, Statistical Methods in Imaging Conference 2023.***
- ***The Best Student Poster Award, 2022 IEEE Western New York Image and Signal Processing Workshop (WNYISPW).***

*Manzorro, R., ***Xu,Y.**, Vincent, J. L., Rivera, R., Matteson, D. S., and Crozier, P. A., "Exploring blob detection to determine atomic column positions and intensities in time-resolved TEM images with ultra-low signal-to-noise," *Microscopy and Microanalysis*, vol. 28, no. 6, pp. 1917–1930, Mar. 2022. DOI: 10.1017/s1431927622000356. [Online]. Available: https://doi.org/10.1017%2Fs1431927622000356,

- ***The Most Outstanding Students Awards, Bronze Medal, UPSTAT 2021 Conference***.

Thomas, A. M., Crozier, P. A., **Xu,Y.**, and Matteson, D. S., "Feature Detection and Hypothesis Testing for Extremely Noisy Nanoparticle Images using Topological Data Analysis," *Technometrics*, vol. 65, no. 4, pp. 590–603, Oct. 2023. DOI: 10.1080/00401706.2023.2203744. [Online]. Available: https://doi.org/10.1080/00401706.2023.2203744.

[1]* First authors contributed equally.

Goolsby, C., Losey, J., **Xu,Y.**, Düker, M.-C., Sherman, M. G., Matteson, D. S., and Moradi, M., "Addressing the embeddability problem in transition rate estimation," *Journal of Pyhsical Chemistry A*, vol. 127, no. 27, pp. 5745–5759, Jul. 2023. DOI: 10.1021/acs.jpca.3c01367. [Online]. Available: https://doi.org/10.1021/acs.jpca.3c01367.

Calabro, C., Sadhu, R., **Xu,Y.**, Aprea, M., Guarino, C., and Cazer, C. L., "Longitudinal antimicrobial susceptibility trends of canine *Staphylococcus pseudintermedius*," *Preventive Veterinary Medicine*, vol. 226, p. 106 170, May 2024. DOI: 10.1016/j.prevetmed.2024.106170. [Online]. Available: https://doi.org/10.1016/j.prevetmed.2024.106170.

Thomas, A. M., Lin, A. C., Deng, G., **Xu,Y.**, Ranvier, G. F., Taye, A., Matteson, D. S., and Lee, D., "A Proof-of-Concept Investigation into Predicting Follicular Carcinoma on Ultrasound Using Topological Data Analysis and Radiomics," *Imaging*, Feb. 2025. DOI: 10.1556/1647.2025.00256. [Online]. Available: https://doi.org/10.1556/1647.2025.00256.

In Prep

Xu,Y., Sarkar, P., and Michailidis, G., "High-dimensional Matrix Auto-Regression Models: A Regularized Estimation Approach with Consistency," Sep. 2025.

Xu,Y., King, M., Hogan, C., Coulson, D. A., Lin, E. F., and Wells, M. T., "Catherization Classification with ECG Waveforms," 2025.

SOFTWARE

R package `eigTest` available on Github: Jointly Estimate and Test for Common Eigenvectors.
R package `PVAR.FiNNO` available on Github: Estimate Panel Vector Auto-Regression (PVAR) model with **Fi**xed-**N**uclear-**N**orm-**O**ptimization.

PRESENTATIONS

Data-Secure Decoupled Transfer Learning from Heterogeneous Low-Rank and Sparse Panel VAR Models, Contributed Session: Causal Inference and Predictive Modeling in Complex Systems, 2025 INFORMS Annual Meeting, Atlanta, GA, Oct. 2025.

Data-Secure Decoupled Transfer Learning from Heterogeneous Low-Rank and Sparse Panel VAR Models, Poster Session: 2025 NBER-NSF Time Series Conference, New Brunswick, NJ, Sep. 2025.

Joint Learning of Panel VAR models with Low Rank and Sparse Structure, Invited Session: Advances in High-Dimensional Time Series: Causality, Learning, and Dimension Reduction, Joint Statistical Meeting (JSM), Nashville, TN, Aug. 2025.

Learning of Multi-level Granger Causal Connectivity, Invited Session: Advances in Modeling and Methodology for Multiple-Subject Time Series, The 38th New England Statistics Symposium (NESS), New Haven, CT, Jun. 2025.

Joint Learning of Panel VAR models with Low Rank and Sparse Structure, Deparment Seminar: the University of California, Santa Cruz, The department of Statistics, Santa Cruz, CA, Jan. 2025.

Joint Learning of Panel VAR models with Low Rank and Sparse Structure, Invited Session: Analysis of High Dimensional Data with Complex Structure, The Conference on Statistical Learning and Data Science (SLDS), Newport Beach, CA, Nov. 2024.

Joint Learning of Panel VAR models with Low Rank and Sparse Structure, Business and Economic Statistics Section, Poster Session, Joint Statistical Meeting (JSM), Portland, OR, Aug. 2024.

Testing Simultaneous Diagonalizability, Conference on Advances in Time Series Analysis, Speedy Session, Chicago, IL, May 2023.

Dynamic Atomic Column Detection in Transmission Electron Microscopy Videos via Ridge Estimation, The Statistical Methods in Imaging Conference 2023, Minneapolis, MN, May 2023.

Non-parametric ridge recovery of TEM image series given temporal parameterization, 2022 IEEE Western New York Image and Signal Processing Workshop (WNYISPW), (Hybrid) Rochester, NY, Nov. 2022.

Non-parametric ridge recovery of TEM image series given temporal parameterization, Science-Integrated Statistical Learning Section, 2022 INFORMS Annual Meeting, Indianapolis, IN, Oct. 2022.

Recording atomic column positions and intensities via Blob Detection in noise-degraded TEM frames, Data Science in Science Minisymposia, The 37th SIDIM, (Virtual) Puerto Rico, Feb. 2022.

Recording atomic column positions and intensities via Blob Detection in noise-degraded TEM frames, UP-STAT 2021 Conference, (Virtual) Rochester, NY, Apr. 2021.

Testing Simultaneous Diagonalizability, Cornell Celebration of Statistics and Data Science, Ithaca, NY, Sep. 2019.

Testing Simultaneous Diagonalizability, Business and Economic Statistics Section, Speed Session, Joint Statistical Meeting (JSM), Denver, CO, Jul. 2019.

LINKS

Website	**Github**	**LinkedIn**	**Google Scholar**	**ORCID**

SKILLS

Programming:	R	Python	Matlab	LaTeX
	SQL	AWS & Azure	Stan	Java
Language:	English		Mandarin	

TEACHING EXPERIENCE

Spring 2023	Understanding Machine Learning	Teaching Assistant
@ Cornell	Instructor: Andrew M. Thomas	STSCI 4750
Fall 2021	Operations Research Tools for Financial Engineering	Teaching Assistant
@ Cornell	Instructor: David Ruppert	STSCI 4630
Spring 2021	Statistics for Financial Engineering	Teaching Assistant
@ Cornell	Instructor: David S. Matteson	STSCI 5640
Fall 2020	Statistical Sampling	Teaching Assistant
@ Cornell	Instructor: Thomas DiCiccio	STSCI 3100
Spring 2020	Basic Probability	Teaching Assistant
@ Cornell	Instructor: Laurent Saloff-Coste	MATH 4710
Fall 2019	Probability Models and Inference	Teaching assistant
@ Cornell	Instructor: Florentina Bunea	STSCI 3080

SERVICE

Since:	Role
October 2023	Associate Editor for the journal Data Science in Science

October 2025	Reviewer for AISTATS
June 2025	Reviewer for Utilities Policy
December 2024	Reviewer for the IEEE Transactions on Signal Processing
October 2024	Reviewer for the Journal of Time Series Analysis
July 2023	Reviewer for the Journal of Computational and Graphical Statistics
January 2023	Reviewer for the Journal of Service Research.
November 2021	Reviewer for the Journal of Econometrics.
January 2021	Reviewer for the Best Student Paper Competition of Joint Statistical Meeting (JSM) Business and Economic Statistics Section (B&E).

INDUSTRY EXPERIENCE

May 2022 — — Aug 2022 Data Scientist Intern
Amazon Web Services (AWS), Seattle, WA
Tasks: Modeling efficacy for internal IT-Services products;
Optimizing data aggregation and interpretation logics.

Mar 2018 — — May 2018 Algorithm & Data Science Intern
China Appraisal Association Data Analysis (CAAD), Shanghai, China
Tasks: Regressing and predicting real estate appraisals;
Optimizing address search algorithms.