Ruixin Guo

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Research interests

Theoretical machine learning, particularly the *statistical* and *analytical* aspects; statistical learning theory.

Applied machine learning: deep learning, recommender systems, large language models, differential privacy.

High-performance computing: code parallelization and algorithm optimization.

Education

Kent State University, PhD Candidate in Computer Science, 2021 –.
Advisor: Ruoming Jin

China University of Geosciences (Wuhan), MSc in Computer Science, 2018 – 2021.
Advisor: Feng Zhang

China University of Geosciences (Wuhan), BS in Information Security, 2014 – 2018.

Work Experience

Research Intern, OppyAI Inc., May 2026 – Aug 2026.

Honors and scholarships

NeurIPS Financial Aid Award, 2025.

China National Scholarship, China University of Geosciences (Wuhan), 2019.

Silver Award in the 6th Parallel Application Challenge, China Computer Federation (CCF), 2018.

Publications

Journals

Label-Free quantification of protein density in living cells
RJ Clements, R Guo, JC Petruccelli, MA Model. Current Protocols, 2025.

Measurement of protein concentration in bacteria and small organelles under a light transmission microscope
MA Model, R Guo, K Fasina, R Jin, RJ Clements, LG Leff. Journal of Molecular Recognition, 2024.

Earth Observation Data Provenance: A Blockchain-Based Solution
Feng Zhang, Zihao Wang, Ruixin Guo, Guangzhi Qu. IEEE Transactions on Industrial Informatics, 2024.

DS-ADMM++: A novel distributed quantized ADMM to speed up differentially private matrix factorization
Feng Zhang, Erkang Xue, Ruixin Guo, Guangzhi Qu, Gansen Zhao, Albert Y Zomaya. IEEE Transactions on Industrial Informatics, 2021.

BaPa: A novel approach of improving load balance in parallel matrix factorization for recommender systems
Ruixin Guo, Feng Zhang, Lizhe Wang, Wusheng Zhang, Xinya Lei, Rajiv Ranjan, Albert Y Zomaya. IEEE Transactions on Computers, 2020.

Optimizing the confidence bound of count-min sketches to estimate the streaming big data query results more precisely
Ruixin Guo, Erkang Xue, Feng Zhang, Gansen Zhao, Guangzhi Qu. Computing, 2020.

Optimizing FHEW with heterogeneous high-performance computing
Xinya Lei, Ruixin Guo, Feng Zhang, Lizhe Wang, Rui Xu, Guangzhi Qu. IEEE Transactions on Industrial Informatics, 2019.

Conferences

Generalizing Linear Autoencoder Recommenders with Decoupled Expected Quadratic Loss
Ruixin Guo*, Xinyu Li*, Yang Zhou, Hao Zhou, Ruoming Jin. International Conference on Learning Representations (ICLR), 2026.

PAC-Bayes bounds for Multivariate Linear Regression and Linear Autoencoders
Ruixin Guo, Ruoming Jin, Xinyu Li, Yang Zhou. Neural Information Processing Systems (NeurIPS), 2025.

Under Review

APlaud: Adaptive Personalized Low-Rank Decomposition for User-Specific LLM
Ruoming Jin, Xinyu Li, Jianfeng Zhu, Ruixin Guo, Zhi Liu.

Geometry-Aware Personalized Preference Optimization via Gradient Alignment
Ruoming Jin, Xinyu Li, Hao Zhou, Jianfeng Zhu, Ruixin Guo, Feodor Dragan, Lei Xu, Haixun Wang, Yang Zhou.

PLUME: Personalization of Large Language Models through Low-Rank User Modulation and Shared Subspaces
Xinyu Li, Hao Zhou, Jianfeng Zhu, Julina Maharjan, Ruixin Guo, Feodor Dragan, Ruoming Jin.

Academic Service

Reviewer for NeurIPS 2026

Teaching Assistant Experience

I served as a *lab assistant* or a *grader* for these courses:

Machine Learning and Deep Learning, CS 54202, Spring 2024.

Design and Analysis of Algorithms, CS 46101, Fall 2022.

Operating Systems, CS 33211, Fall 2022.

Discrete Structures for Computer Science, CS 23022, Spring 2026, Spring/Fall 2025.

Computer Science IA: Procedural Programming, CS 13011, Fall 2024.

Programming for Problem Solving in Sciences, CS 10062, Fall 2025/2024/2023.

Computer Science Principles, CS 10051, Spring 2023.