YAQIN CHEN

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RESEARCH INTERESTS

Generative Modeling and its Foundations: Deep Generative Models, Statistical Machine Learning, AI for Science

Sequential Decision Making and Optimization: Reinforcement Learning, Optimization Methods

EDUCATION

School of Mathematics (Zhuhai), Sun Yat-sen University Sep 2022 – Jun 2026 (expected)
- B.S. in Information and Computing Science, GPA: 4.0/4.0 (1/60)
- Core curriculum: Mathematical Statistics, Real Analysis, Numerical Analysis, Stochastic Processes, Optimization, PDE

Department of Statistics, University of Wisconsin-Madison Sep 2025 – May 2026 (expected)
- Visiting International Student Program (Thematic Statistics Track)
- Core curriculum: Statistical Inference, Statistical Methods, Machine Learning and Statistical Pattern

RESEARCH EXPERIENCE

Department of Statistics, University of Wisconsin–Madison *Research Assistant* Oct 2025 – Present
Undergraduate Thesis (in progress) *Advisor: Yiqiao Zhong*
- Understanding geometric structures of internal representations in coding and reasoning LLMs.
- Focusing on how representation geometry relates to generalization, robustness, and systematic reasoning behavior.

Decision, Risk and Operations Division, Columbia Business School *Research Assistant (remote)* Mar 2025 – Present
Advisor: Hongseok Namkoong
- Developed the core scalable benchmarks for evaluating large language models in interactive, multi-turn environments.
- Benchmarked frontier LLM in-context learning across repeated interactions, identifying key adaptation challenges.
- Analyzed LLM failure modes via user simulation, providing key evidence of poor learning from experience.

iSURE Program, University of Notre Dame *Research Intern* July 2025 – Dec 2025
Advisor: Jianxun Wang (Sibley School of Mechanical Engineering, Cornell University)
- Researched the theoretical and mathematical unification of diffusion models and flow-matching generative frameworks.
- Adapted and benchmarked posterior sampling for flow-based conditional generation on scientific datasets (e.g., turbulence).
- Investigated training-free guidance techniques to accelerate sampling speed while ensuring generation accuracy.

Human Cyber Physical Intelligence Laboratory, Sun Yat-sen University *Research Assistant* Feb 2024 – Feb 2025
Advisor: Pengxu Wei, Liang Lin (Fellow of IEEE/IAPR)
- Researched the impact of latent alignment and structural inductive biases in Variational Autoencoders (VAEs).
- Developed a statistical framework for efficient representation learning with Minimum Variance Unbiased Estimator.
- Devised novel autoencoder architectures that enforce statistical efficiency to improve representation learning quality.

ACADEMIC PAPERS

Benchmarking In-context Experiential Learning Through Repeated Product Recommendations [arXiv] [pdf]
Gilbert Yang*, *Yaqin Chen**, Thomson Yen*, Hongseok Namkoong
Under review at the International Conference on Learning Representations (ICLR), 2026

Training-Free Guided Generation Techniques for Conditional Flow Matching on Scientific Datasets (working paper)
Meet Hemant Parikh, *Yaqin Chen*, Jianxun Wang

MVU-AE: Minimum Variance Unbiased Autoencoders[pdf]
Yaqin Chen, Junrong Lian, Qing Zhao, Xiangyang Ji, Liang Lin, Pengxu Wei
Manuscript in revision for resubmission.

SELECTED PROJECTS

Development of a Martial Arts Teaching and Scoring System Based on YOLOv8   Demo Pages
2024 Chinese Academy of Sciences Innovation and Practice Training Program For Undergraduate
Project Leader

- Developed a real-time martial arts coaching system using YOLOv8 for pose estimation and movement analysis.
- Engineered an automated scoring engine based on video analysis to provide objective performance feedback.
- Integrated a Large Language Model (LLM) to generate personalized, multi-modal (text and voice) coaching.

AWARDS

Chinese National Scholarship (Top 1%)	2024
First-Class Excellent Student of SYSU (Top 5%, 1/151)	2024
First-Class Excellent Student of SYSU (Top 5%, 1/151)	2023
MCM Modeling Contest Meritorious Award (7% of 11296)	2023
First Prize 37th Chinese Physics Olympiad of Jiangxi Province (Top 5%)	2020

PROFESSIONAL SKILLS

Programming Languages: Python, C++, R, MATLAB

Languages: English(fluent), Chinese(native)

STANDARDIZED TESTS

GRE: Verbal 159 (80%) + Quantitative 170 (91%) + Analytical Writing 3

TOEFL: Total 108 (Reading 28+Listening 27+Speaking 26+Writing 27)