Ye Tian

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Profile

PhD candidate in mathematics with a strong background in algorithms, compressed sensing, numerical analysis, machine learning, deep learning, and AI-driven workflows. Experienced researcher and developer passionate about machine learning, mathematical theory, and practical applications.

Education

PhD in Mathematics *Expected May 2026*
Franklin College of Arts and Sciences, University of Georgia, Athens, GA, USA GPA: 3.8/4.0
B.S. Mathematics *May 2020*
Boston College, Chestnut Hill, MA, USA

Professional Experience

Machine Learning Precision Medicine Fellow(Machine Learning Engineer) *Nov 2024 – May 2025*
Food & Drug Administration (FDA), Silver Spring, MD

- Built a backend service to **dynamically ingest and normalize user-submitted raw data**, auto-dissecting payloads into a structured spreadsheet for analytics; delivered a **web UI** for ops and monitoring.
- Developed a **local code interpreter** capability for the internal GPT system (sandboxed execution, resource caps, audit logging) enabling reproducible, policy-compliant analysis.
- *Tools:* Python, PyTorch/Transformers, local LLM inference, vector search/RAG, Linux, REST APIs, basic front-end.

ORISE Fellow(Machine Learning Engineer) *May 2024 – Sept 2024*
Food & Drug Administration (FDA), Silver Spring, MD

- Built an **AI-driven paper review pipeline** (document intake, model inference, review artifact generation) under strict compute/security constraints (air-gapped Linux workstation).
- Led **data preparation end-to-end**: labeling schema, dataset curation/cleaning, class balancing, evaluation design for regulatory text.
- Trained and deployed a **domain-adapted BERT** model for review assistance (selected for **resource efficiency** and low latency on workstation hardware).
- Designed and led a **retrieval-augmented review module** using a locally deployed **Llama-70B** (on-prem Linux) to draft regulatory review comments with citations; built retrieval, prompt routing, and post-processing for reviewer handoff.

- **Tech lead (2 reports):** owned integration of the end-to-end **AI review pipeline** (data ingestion → model inference → comment insertion), including API contracts, orchestration, and robust error handling.
- *Tools:* Python, Hugging Face Transformers, scikit-learn, pandas, Linux, HTML/JavasSript/Node.js.

System Designer & Backend Developer *Jul 2023 – Mar 2024*
YORG AI (backed by Miracle Plus / former YC China), Remote

- Co-designed a **multi-agent platform** for building composable AI workflows; authored agent-to-agent protocol (state passing, tool calling, failure recovery).
- Shipped demo agents: a **data-analyst agent** and a **coding assistant**.
- Implemented task orchestration, lightweight memory, and safety rails; supported **LLM-for-coding** experiments and delivered a working web demo.
- *Tools:* Python, LLM orchestration, embeddings/RAG, HTML/JavasSript/Node.js.

Projects

- **Retrieval Augmented Generation for Researcher database (work in progress)** Application of graph RAG in building personal database for researchers.
- **Sparse Solutions in Medical Imaging** – 2D/3D medical image classification with sparse solution method-based graph Laplacian technique.
- **AI-driven Marketing Tools** – Advertisement workflow for e-commerce powered by language models and AI graphic tools.

Preprints

- J. Hamel, M.-J. Lai, Z. Shen, **Y. Tian** (α-β), *Local Clustering for Lung Cancer Image Classification via Sparse Solution Technique*, 2024, arXiv:2407.08800

Work in Preparation

- Fast clustering technique for directed graph on asymmetric datasets.
- Andersen Acceleration with filtering for pressure-robust nonlinear stokes scheme.

Technical Skills

Python • Mathematica • MATLAB• Deep Learning•Machine Learning•PyTorch•Git

Languages

Mandarin Chinese (Native), English (Bilingual)

Conferences & Talks

- DAC 2025, surrogate presentation (DuQTTA: Dual Quantized Tensor-Train Adaptation with Decoupling Magnitude-Direction for Efficient Fine-Tuning of LLMs)
- Shanks Conference: Constructive Functions 2025, presentation.
- SIAM Conference on Mathematics of Data (SIAM MD24), Poster Presentation, 2024.
- Applied Mathematics Seminar Speaker, UGA Mathematics Department, 2024.
- Graduate Student Seminar, UGA Mathematics Department, 2021.
- Organizer and Speaker Coordinator, Boston College Math Society Events, 2019.

Research Assistantships

- Undergraduate Research Assistant, Khovanov Homology, supervised by Prof. John A. Baldwin, Boston College, 2018–2020.
- Undergraduate Research Assistant, Neural Networks and Topology, supervised by Prof. Julia E. Grigsby and Prof. Kathryn Lindsey, Boston College, 2017–2018.

Mentorship

Directed Reading Program (DRP), Polynomial Invariants for Links, UGA, Summer 2022

Honors & Awards

- Ball Scholarship, UGA Mathematics Department, 2022.
- Undergraduate Research Fellowship, Boston College Mathematics Department, 2017.

Teaching Experience

- MATH2250, Calculus I, UGA (Fall 2024, Spring 2024, Spring 2023, Fall 2022)
- MATH1130, Pre-calculus, UGA (Fall 2023, Spring 2022, Fall 2021)

Leadership & Membership

- American Mathematical Society (AMS), Member (2018–2019)
- Boston College Mathematics Society, Treasurer (2018–2019), Co-President (2019–2020)