Rosen Ting-Ying Yu

Massachusetts Institute of Technology

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Education

Massachusetts Institute of Technology (GPA: 5.0/5.0) 2023 – Present

- PhD student in Computational Science & Engineering (2028 anticipated)
- Master of Science in Computational Science and Engineering (May 2025)

Georgia Institute of Technology 2019 – 2023

- B.S. in Electrical Engineering
- Minor in Computer Science (Artificial Intelligence) & Earth and Atmospheric Science (Geophysics)

Graduate Research Experience

MIT Design Computation and Digital Engineering (DeCoDE) Lab 2023 – Present

Graduate Research Assistant (Advisor: Prof. Faez Ahmed) *Cambridge, MA*

- Pioneering tabular foundation models + Bayesian optimization with x200 speedup & SOTA accuracy.
- Investigating in deep learning algorithms for high-dimensional optimization and regression settings.
- Developing synthetic data generation pipelines that resemble field-specific data for foundation model training.
- Administrating lab's high-performance computing cluster (20+ H100 and H200 GPUs) & maintaining lab website.

Peer-Reviewed Conference Publications

C1. FIRE: Multi-fidelity Regression with Distribution-conditioned In-context Learning using Tabular Foundation Models. **Rosen Ting-Ying Yu**, Nicholas Sung, and Faez Ahmed. (2026). *ICML 2026 (Spotlight), International Conference on Machine Learning.*

C2. GIT-BO: High-Dimensional Bayesian Optimization with Tabular Foundation Models. **Rosen Ting-Ying Yu**, Cyril Picard, and Faez Ahmed. (2026). *ICLR 2026, International Conference on Learning Representations.*

C3. TabPFN-2.5: a Preview. Leo Grinsztajn, Klemens Flöge, Oscar Key, Adrian Hayler, Mihir Manium, Anurag Garg, Jake Robertson, Shi Bin Hoo, Felix Birkel, Philipp Jund, Benjamin Jäger, **Rosen Ting-Ying Yu**, Bernhard Schölkopf, Noah Hollmann, Frank Hutter. (2025). *EurIPS Workshop AI for Tabular Data.*

Selected Journal Publications

J1. Fast and Accurate Bayesian Optimization with Pre-trained Transformers for Constrained Engineering Problems. **Rosen Ting-Ying Yu**, Cyril Picard, and Faez Ahmed. (2025). *Structural and Multidisciplinary Optimization.*

Selected Research Presentations

P1. FIRE: Multi-fidelity Regression with Distribution-conditioned In-context Learning using Tabular Foundation Models. (2026). *ICLR 2026 Workshop on Foundation Models for Science*, Rio de Janeiro, Brazil. Poster

P2. GIT-BO: High-Dimensional Bayesian Optimization with Tabular Foundation Models (2026). *ICLR 2026*, Rio de Janeiro, Brazil. Poster News article.

P3. GIT-BO: High-Dimensional Bayesian Optimization with Tabular Foundation Models (2025). *International Design Engineering Technical Conferences*, Anaheim, CA. Talk

P4. GIT-BO: High-Dimensional Bayesian Optimization with Tabular Foundation Models (2025). *ICML 2025*

International Conference on Machine Learning Foundation Model for Structured Data Workshop, Vancouver, Canada. Poster

P5. High-Dimensional Bayesian Optimization with Pre-trained Transformers (2024). *iNCMDAO International & National Conference on Multidisciplinary Design, Analysis and Optimization*, Bengaluru, India. Talk

P6. Pre-trained Transformers for Constrained Bayesian Optimization (2024). *International Design Engineering Technical Conferences*, Washington, DC. Talk

P7. Monitoring CO_2 Plume with Sequential Bayesian Inference (2022). *ML4Seismic Industry Partners Meeting*, Atlanta, GA. Project Page. Talk

Industry Experience

Prior Labs 2025

Research Scientist Internship (1st intern hired by Prior Labs) *Freiburg, Germany*

- Optimized tabular foundation model finetuning for regression and classification, reducing 30% prediction error.
- Contributed to two trending GitHub repos: TabPFN and TabPFN time series (2.5M+ downloads).

Service

Reviewing

- **Journals:** Computer-Aided Design and Mechanical Systems and Signal Processing.
- **Conferences:** ICLR 2026 Workshop on Foundation Models for Science, ICML 2026 Foundation Models for Structured Data, NeurIPS

Honors and Awards

2025	The CCSE College of Computing Graduate Fellowship, MIT. News article.
2024	Best Paper (Special Mention), iNCMDAO Conference.
2023	Top viewed article, Journal of Geophysical Research: Planets.
2023	Graduated with Highest Honor with Georgia Tech Dean's list (9x), Georgia Tech.
2022	ThinkSwiss Research Scholarship, Embassy of Switzerland.
2020, 2022	President's Undergraduate Research Awards, Georgia Tech.

Teaching & Advising

Teaching Assistant

MIT 2.086 Numerical Computation for Mechanical Engineers (2 semesters, 2024 & 2025) *Cambridge, MA*

- Developed homework and hosted office hours for MATLAB programming & computing. Teaching Page.
- Co-led lab lectures on optimization and introduction to AI & ML (Statistics & Machine Learning Toolbox).

Undergraduate Research (UROP) Mentor

Massachusetts Institute of Technology *Cambridge, MA*

- Supervised 2 MIT undergraduate researchers, scoping projects, guiding methods, and supervising analysis.

Skills

AI/ML	Generative Models, Deep Learning, AutoML, Multimodal ML, ML Fundamentals, RL, LLMs, Tabular foundation models
Programming	Python (PyTorch), MATLAB, Bash, Shell, Julia, C/C++, R, Java, Git, LaTeX, Gradio, Replit, HTML/CSS, React.js
Optimization	Heuristic Methods (Genetic Algorithms, Particle Swarm, etc.), Bayesian optimization, Gradient-based (SGD, BFGS, Adam, etc.)
Computing	Object-Oriented Programming (OOP), Data Structures & Algorithms, Parallel Computing, Numerical Methods
Software	AWS, Solidworks, AutoCAD, COMSOL, Ansys
Hardware	Soldering, Arduino, Raspberry Pi, ESP32/8266, Digilent Analog Discovery, ARM mbed, Sensing Systems, Power Systems (Basic), Digital Systems (Basic)
Mentoring	MIT CAPD Certification: Formal instruction and assessment in research mentoring methods
Languages	English (Advanced, 6+ years living in the US), Chinese (Native), Japanese (Beginner)