

Rosen Ting-Ying Yu

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Education

Massachusetts Institute of Technology (GPA: 5.0/5.0)

2023 – Present

- Ph.D. Candidate in Computational Science & Engineering (May 2029 anticipated)
- S.M. in Computational Science and Engineering (May 2025)

Cambridge, MA

Georgia Institute of Technology

2019 – 2023

- B.S. in Electrical Engineering, graduated with Highest Honor
- Minor in Computer Science (Artificial Intelligence) and Earth & Atmospheric Science (Geophysics)

Atlanta, GA

Graduated Research Experience

MIT Design Computation and Digital Engineering Lab

2023 – Present

GRADUATE RESEARCH ASSISTANT (ADVISOR: PROF. FAEZ AHMED)

Cambridge, MA

- Advancing **tabular foundation models** for fast and accurate tabular predictions (regression, classification) and optimization.
- Pioneering foundation-model-driven **Bayesian optimization**, achieving 200× speedup and SOTA accuracy on GPU.
- Investigating **real-world data-centric** (e.g., **out-of-distribution**, **high-dimensional**) algorithms design in ML & optimization.
- Developing **synthetic data** generation pipelines for foundation model domain-adaptive **pre-training and finetuning**.
- Administering lab's **high-performance computing** (24 NVIDIA H100/H200 GPUs and 25 RTX 40s/50s/60s GPU) and AWS cluster.

Industry Experience

Prior Labs

2025 - 2026

RESEARCH SCIENTIST INTERN (1ST INTERN HIRED)

Berlin/Freiburg, Germany

- Co-developed to the TabPFN tabular foundation model that grew the company to a **€1B acquisition by SAP** within two years.
- Optimized tabular **foundation model finetuning** for regression and classification, reducing prediction error by 30%.
- Contributed to **TabPFN** and **TabPFN time series** repos (2.5M+ downloads), used at Google, Microsoft, XTX Markets, and Hitachi.

Peer-Reviewed Conference Publications

C1. FIRE: Multi-fidelity Regression with Distribution-conditioned In-context Learning using Tabular Foundation Models. **Yu, R. T.-Y.**; Sung, N.; Ahmed, F. (2026). **ICML International Conference on Machine Learning**. **Spotlight (top 2.2%)**.

C2. GIT-BO: High-Dimensional Bayesian Optimization with Tabular Foundation Models. **Yu, R. T.-Y.**; Picard, C.; Ahmed, F. (2026). **ICLR International Conference on Learning Representations**.

C3. TabPFN-2.5: a Preview. Grinsztajn, L.; Flöge, K.; Key, O.; Hayler, A.; Manium, M.; Garg, A.; Robertson, J.; Hoo, S. B.; Birkel, F.; Jund, P.; Jäger, B.; **Yu, R. T.-Y.**; Schölkopf, B.; Hollmann, N.; Hutter, F. (2025). **EurIPS Workshop on AI for Tabular Data**. **Spotlight**.

Selected Research Presentations

P1. FIRE: Multi-fidelity Regression with Distribution-conditioned In-context Learning using Tabular Foundation Models. **(i) ICML Main Conference**, Seoul, Korea (2026). **(ii) ICLR Workshop on Foundation Models for Science**. Rio de Janeiro, Brazil (2026). **Poster**. [Project Page](#)

P2. GIT-BO: High-Dimensional Bayesian Optimization with Tabular Foundation Models. **(i) ICLR Main Conference**, Rio de Janeiro, Brazil (2026). **(ii) ICML Workshop on Foundation Models for Structured Data**, Vancouver, Canada (2025). **Poster**. [News article](#). [Project Page](#).

P3. High-Dimensional Bayesian Optimization with Pre-trained Transformers (2024). **iNCMDAO International & National Conference on Multidisciplinary Design, Analysis and Optimization**, Bengaluru, India. **Talk**.

P4. Pre-trained Transformers for Constrained Bayesian Optimization (2024). **International Design Engineering Technical Conferences**, Washington, DC. **Talk**.

Selected Journal Publications

- J1.** BOCoDe: Engineering-Centered Benchmarking for Bayesian Optimization. **Yu, R. T.-Y.**; Hatterer, C.; Narayanan, A.; Picard, C.; Ahmed, F. (2026). arXiv:2608.15073 (Under Review)
- J2.** Engineering Regression Without Real-Data Training: Domain Adaptation for Tabular Foundation Models Using Multi-Dataset Embeddings. Regenwetter, L.; **Yu, R. T.-Y.**; Picard, C.; Ahmed, F. (2026). arXiv:2603.04692 (Under Review)
- J3.** Fast and Accurate Bayesian Optimization with Pre-trained Transformers for Constrained Engineering Problems. **Yu, R. T.-Y.**; Picard, C.; Ahmed, F. (2025). **Structural and Multidisciplinary Optimization** (Impact Factor 4.8).
- J4.** Tectono-Magmatic Evolution of Asymmetric Coronae on Venus: Topographic Classification and 3D Thermo-Mechanical Modeling. Gülcher, A.; **Yu, R. T.-Y.**; Gerya, T.V. (2023). **Journal of Geophysical Research: Planets**. [Top Viewed Article 2023](#).

Reviewing

- **Conferences:** NeurIPS, ICML, ICLR, ICLR Workshop on Foundation Models for Science (2026), ICML Workshop on Foundation Models for Structured Data (2026).
- **Journals:** Mechanical Systems and Signal Processing (Impact Factor 10.2), Computer-Aided Design.

Awards & Honors

2026 May	IMC PhD Fellowship (IMC Trading)
2026 April	MIT Mathworks PhD Fellowship
2026 April	ICML 2026 Spotlight Paper (Top 2.2%)
2025 April	MIT CCSE College of Computing Graduate Fellowship
2024 January	iNCMDAO Conference Best Paper (Special Mention)
2023 May	Georgia Tech Graduated with Highest Honor & Dean's List (9×)
2020, 2022	President's Undergraduate Research Awards, Georgia Tech

Skills

AI/ML	Generative models, deep learning, AutoML, multimodal ML, ML fundamentals, RL, LLMs, tabular ML, foundation models
Optimization	Bayesian (ML surrogate), Heuristic (GA, PSO, etc.), gradient-based (SGD, BFGS, Adam, etc.), constrained, high-dimensional
Coding	Advanced: Python, Torch, scipy/numpy/sklearn, MATLAB, LaTeX; Proficient: Julia, C/C++, R, Java, Git, HTML/CSS, Gradio
Computing	Object-oriented programming, data structures & algorithms, parallel computing, numerical methods
Hardware	Arduino, Raspberry Pi, ESP32/8266, Digilent Analog Discovery, ARM MBED, FPGA, Oscilloscope
Languages	English (advanced, 7+ years living in the US), Chinese (native), Japanese (beginner)