Quentin FRUYTIER

Ph.D. Candidate
University of Texas at Austin
M.Sc. & B.Sc. Graduate
McGill University

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Ph.D. Supervisors

Aryan Mokhtari
Sujay Sanghavi

M.Sc. Supervisors

Abbas Khalili
Tim Hoheisel

Patents

Latent Distribution Shaping:
19/337202 September 2025

Programming Skills

Python (PyTorch & TensorFlow)
C, C++, Java, Bash Script

Languages

Bilingual French (native) and English

Domain Knowledge

Transformers, Auto-encoders, CNN, VIT, Mixtures of Experts. EM Algorithm, SGD, Mirror Descent, KL-divergence, Maximum Mean Discrepancy, Disentanglement, Interoperability.

Education

UT Austin • Ph.D. in Electrical Engineering • 4.0/4.0 GPA — Expected 2027

McGill University • Masters in Mathematics • 4.0/4.0 GPA — August 2023

McGill University • Joint Honours Math & Comp. Sci. • 3.8/4.0 GPA — June 2021

Research Experience

Sculpting Latent Spaces With MMD (*ICLR/ICML 2026*). Summer 2025
Developed a foundational framework for training Deep Learning models to learn latent representations that feature *any* desired distribution, regardless of the architecture. Provable successful *applications for Disentanglement, Interoperability, Model Identifiability, Quantization, etc.*

Learning Mixtures of Experts with EM (ICML 2025). 2023-2024
Theoretically and Experimentally demonstrated that the EM algorithm offers fast convergence to parameters offering a better optimal solution in Mixture of Experts models.

Vision Transformers for Fast MRI. 2023-2024
Utilizing VITs to predict missing k-space lines for fast MRI (fastMRI Dataset).

M.Sc. Thesis on EM Algorithm. Fall 2021-Summer 2023
Review of the EM's convergence properties and applications to mixture models.

Deep Learning for Traffic Prediction. Winter 2021
Capturing the spatial and temporal dependencies of traffic data with Graphs.

Work Experience

AI/ML Researcher for Wireless Communications Summer 2025
InterDigital Inc. AI Lab *Los Altos, CA*
Developed a foundational framework to engineer the latent spaces of Deep Learning models. Work ultimately lead to a patent and several publications.

Data Science Intern at Nectar Summer 2021
Nectar Technologies Data Science *Montreal, QC*
Prototyped Deep Learning models on sensor data to predict hive health.

Software Engineer Intern at Matrox/Akamai Summers 2019/2020
Montreal QC/Ottawa ON

Teaching Experience

Teaching Assistant 2019-2022
Principles of Statistics 1, Calculus 2, Foundations of Programming (Python/ Java)
McGill University Department of Mathematics and Statistics *Montreal, QC*

Awards

Basdall Gardner Memorial Graduate Fellowship in Engineering Feb 2023 -
UT Austin fellowship for academic excellence

Graduate Excellence Fellowship Award May 2022
McGill University award for academic excellence

Tomlinson Engagement Award for Mentoring April 2019
McGill University award for assistant teaching in undergraduate classes.