

TOM (TIANZE) YANG

tianze.yang@mail.mcgill.ca

| (+1) 514-560-9523

| [LinkedIn](#)

| [GitHub](#)

EDUCATION

McGill University

Montreal, Canada

M.Sc.(Thesis) in Computer Science, Supervisor: [Prof. Xue Liu](#)

Sep 2023 - present

- GPA: 4.0/4.0

B.Sc. in Honors Probability and Statistics (DS & ML Path), Minor Computer Science

Sep 2020 - May 2023

- GPA: 3.85/4.0

HONORS

- Master of Science Stipend (2023)
- First-Class-Honors in Probability and Statistics (2023)
- William Macdonald Scholarship (2020-2023)
- Research Assistant Stipend at XiaLab (2021-2023)
- Research Assistant Stipend at Weichenthal's Lab (2021)
- McGill Science Dean's Honor List (2020-2021)
- Wing Hing Chan Scholarships in Science (2020-2021)
- McGill Emerging Leaders Certificate (2021)
- Huawei Seeds for the Future Certificate (2021)
- Earnest Fox Award of Mechanics, Marianopolis College Scholar, Marianopolis College Entrance Scholarship (2018)

RESEARCH INTERESTS

Data-Centric and Model-Centric AI; Theories and Applications of Language Model; Theories of ML; ML in Health Discovery

PUBLICATIONS

[1] [AI Clinics on Mobile \(AICOM\): Universal AI Doctors for the Underserved and Hard-to-Reach](#) (co-First Author)

Tim Tianyi Yang*, **Tom Tianze Yang***, Na An, Ao Kong, Shaoshan Liu, and Xue Liu

Under Peer-Review

[1] [AICOM-MP: an AI-based Monkeypox Detector for Resource-Constrained Environment](#) (co-First Author)

Tim Tianyi Yang*, **Tom Tianze Yang***, Andrew Liu, Jie Tang, Na An, Shaoshan Liu, and Xue Liu

Connection Science, IF 5.3

PROFESSIONAL EXPERIENCE

Nebula AI

Montreal, Canada

AI Engineer

Sep 2023 - present

- Develop Stroke prediction AI using Transformers, Decision tree, Random forest, Fisher-score, Regression, QLoRA, and Python
- Develop the Model Manager plugin for ComfyUI, utilizing Node.js, Docker, HTML, and CSS, to enable custom downloading of models.
- Participated in the Chainlink Hackathon on behalf of the company
- Create Generative Art NFT using Chainlink Functions, Stable Diffusion models, Multi-Chain Storage, python, Docker, html, css, js
- Enabled LLM/Generative AI as a service on web3OS using Flask, Docker, Transformers, Python
- Develop and implement a system for generating data NFTs using Stable Diffusion, IFPS, and Python

McGill University & MILA

Montreal, Canada

Research Intern. Mentors: [Dr. Shaoshan Liu](#), [Prof. Xue Liu](#)

Sep 2022 - present

- Develop a language model to carry out data engineering tasks using prompting techniques, Transformers, and Python
- Design and optimize a LLM-based medical AI for mobile platforms, using QLoRA, LangChain, Chroma DB, TinyChat Engine
- Developed the State-of-the-Art Monkeypox Screening AI using Python Tensorflow, reached >98% accuracy and > 1000 downloads.
- Developed an AI-powered Android App using Android Studio and float-16 quantization, achieved >98% accuracy
- Designed a [website](#) featuring a Monkeypox screening AI integrated into its web interface, using Angular, Python Flask,

Google Cloud

- Entered MIT Solve challenge
- Open-sourced: [link](#)

Shenzhen Institute of Computing Science

Shenzhen, China

Research Intern. Mentor: [Dr. Weijie Ou](#)

Jul 2023 – Sep 2023

- Developed an LLM-based text parser using Python Transformers and Llama2-7b, achieved 70% accuracy NL2SQL task.
- Fine-tuned Llama2-7b for NL2SQL task using QLoRa and Peft, achieved 187.56% improvement in execution accuracy.
- Augmented Llama2-7b for NL2sQL task using Chain-of-Thought, few/zero-shot prompting, role-play prompting techniques, achieved 123.5% improvement in execution accuracy
- Implemented a NL2SQL engine for YashanDB using Python and BASH

RESEARCH EXPERIENCE

McGill University

Montreal, Canada

Quantitative Risk Analyst, PI: Prof. Christian Genest

Sep 2022- Dec 2022

- Developed a Time-Series model of the Value-at-Risk of cryptocurrencies using ARMA+GARCH framework and R
- Examined the correlation between cryptocurrencies using Copula method and R

AI Engineer, Full-stack Web Developer, PI: Prof. Jianguo Xia

Jul 2021- May 2023

- Implemented and deployed a public academic forum named [OmicsForum](#) (with over 725 users) using discourse and docker
- Designed, trained, and deployed a RASA chat agent on MetaboAnalyst, which has been used by >500,000 researchers, using Python, JS, and JAVA
- Built a metabolomic tools search engine for SystemsAnalyst using MeiliSearch

ML Engineer, Data Analyst, PI: Prof. Suresh Krishna

May 2022 - Sep 2022

- Processed and analyzed human visual scanpath data using Python and Matlab
- Modeled human visual search behaviour through zero-shot invariant techniques and bottom-up inverse reinforcement learning

ML Intern, PI: Prof. Jean-Baptiste Poline

Sep 2021- May 2022

- Extracted database usage information from neuroscience articles using Linear Regression model & Sequential Neural Network model, achieved >80% accuracy
- Pre-processed neuroscience articles using data cleaning tools and Python.

ML Intern, PI: Prof. Yi Yang

Mar 2022 - Sep 2022

- Studied and applied reinforcement Learning Techniques such as Multi-armed Bandits and finite Markov Decision Process using Python

Research Assistant, PI: Prof. Scott Weichenthal

May 2021 - Sep 2021

- Designed routes for data collection process
- In charge of setting up equipment and collecting environmental data, such as the density of black carbon in different areas of Montreal

TEACHING EXPERIENCE

McGill University

Montreal, Canada

Design of Experiments Math 558(Course Assistant)

Starting in Jan 2024

Honours Statistics Math 357(Course Assistant)

Starting in Jan 2024

Honours Analysis Math 254(Course Assistant)

Sep 2023 - prese

SELECTED COURSES

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|--|------------------------------|----------------------------|
| * Probabilistic Analysis of Algorithms | *Intelligent Software System | *Responsible AI |
| *Applied Machine Learning | Database System | Artificial Intelligence |
| *Natural Language and Data Science | *Advanced Probability II | *Non-parametric Statistics |
| *Regression and Analysis of Variance | *Causal Inference | |

* =graduate course

SKILLS

- **Computer Science:** Python (Pytorch, Transformers, Tensorflow, Flask, NumPy, Pandas), Docker, SQL, BASH, Linux/Ubuntu, Google Cloud
- **Math:** R, Time-Series analysis, Regression, Linear Algebra, Nonparametric Statistics, Causal Inference
- **Language:** Fluent in English, Chinese, and French(intermediate)