Tom(Tianze) Yang

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SKILLS

- Senior student researcher with 2+ years of experience in fulfilling data analysis through ML and statistical methods.
- Proficient in Python(Flask, Pytorch, Transformers, Tensorflow, Pandas), Docker, R, SQL, Latex
- Great experience with LLM prompt engineering & fine-tuning, CUDA, Linux, Ubuntu, Google Cloud, Time-Series analysis
- Fluent in English, Chinese, and French(intermediate)

PUBLICATION:

- [AI Clinics on Mobile (AICOM): Universal AI Doctors for the Underserved and Hard-to-Reach](#) (*Connection Science*,co-First Author)
- [AICOM-MP: an AI-based Monkeypox Detector for Resource-Constrained Environment](#) (*ArXiv*,co-First Author,sent for peer-review)

EDUCATION

McGill University   **Montreal, CA**
  M.Sc.(Thesis) in Computer Science, Supervisor: Prof. Xue Liu. GPA: 4.00   *Sep 2023 - Present*
  B.Sc. in Honours Probability and Statistics(DS & ML Path), Minor Computer Science, GPA: 3.85   *Sep 2020 - May 2023*

PROFESSIONAL EXPERIENCE

Nebula AI   **Montreal, CA**
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.
- Create Generative Art NFT using Chainlink Functions, Stable Diffusion models, Multi-Chain Storage, python, Docker, html, css, js
- Develop and implement a system to generate data NFTs using Stable Diffusion, IFPS, and Python
- Build and deploy LLM and generative AI on web3OS Lagrange Space using Flask, Docker, Transformers, and Python

McGill University & MILA   **Montreal, CA**
Project co-Leader, Research Intern   *Sep 2022 – Present*
- Finetune a language model to carry out data engineering tasks using In-context learning, Scikit Learn, Transformers, and Python
- Design and optimize a LLM-based medical AI, using Transformers, QLoRa, LlamaIndex, LangChain, and Python
- 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](#) and deployed a Monkeypox screening AI to its web interface, using Angular, Python Flask, Google Cloud

Shenzhen Institute of Computing Science   **Shenzhen, China**
NL2SQL Project Leader, Research Intern   *Jun 2023 - Sep 2023*
- Developed a LLM-based text parser using Python Transformers and Llama2-7b, achieved 70% accuracy on the task of transforming natural language to SQL Query (NL2SQL)
- 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

McGill University   **Montreal, CA**
AI Research Intern   *Jul 2021- May 2023*
- Implemented and deployed a public academic forum named [OmicsForum](#) (with over 725 users) using discourse, docker in Ubuntu
- Designed, trained, and deployed a chatbot on MetaboAnalyst, which has been used by >500,000 researchers, using Python, JS, JAVA
- Built a metabolomic tools search engine for SystemsAnalyst using open-source software MeiliSearch

RELEVANT RESEARCH EXPERIENCE

McGill University   **Montreal, CA**
Quantitative risk analysis, PI: Prof. Christian Genest   *Sep 2022 - Jan 2023*
- 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

Machine Learning, PI: Prof. Jean-Baptiste Poline   *Sep 2021 - May 2022*
- Extracted database usage rate from neuroscience articles using Linear Regression & Neural Network, achieved >80% accuracy
- Pre-processed neuroscience articles using data cleaning tools and Python.

HONORS & AWARDS

- Master of Science Stipend(2023-present)
- First-Class-Honours 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, Huawei Seeds for the Future Certificate (2021)