Cheng Chi

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SUMMARY OF QUALIFICATIONS:

- Solid experience in Machine Learning and Optimization (Python, Tensorflow, Pytorch, Jax, Gurobi, CPLEX)
- Data Engineering and Analysis (Pandas, Tableau, Excel, SQL)
- Hands-on experience in algorithmic trading (FinRL, Quantopian, YahooFinance, Alpaca)
- Firm background in advanced ML models (Transformers, Diffusion model, NeuralODE, Gassian Process, PINN, …)

EDUCATION:

University of Toronto
- Master of Applied Science & Engineering (expected graduation 08/31/2023)   - GPA 4.0 / 4.0
- Bachelor of Applied Science & Engineering in Industrial Engineering; AI Minor; Business Certificate - GPA 3.8 / 4.0

EXPERIENCES:

C-MORE / DORL LABORATORY   **Research Assistant,** Toronto, Sep 2021 – current
- Utilized Reinforcement learning to speed up commercial optimization solvers, which led to at least 22% speed-ups in solving large scale optimization problems.
- Developed ML algorithms for physical system control, which led to $50,000 funded project in IC-IMPACTS.

CANADIAN TIRE CORPORATION   **Capstone Team leader,** Toronto, Sep 2020 – May 2021
- Worked with the Optimization & Analytics Team at CTC to develop a ML-based model for outbound cubes per trailer prediction at the transload facility in a weekly basis for downstream decision optimization tasks.
- Developed ML model reduces prediction error by 39.3% compared to original method used by CTC.

UNILIVER   **Research Internship,** Toronto, Jan 2023 – current
- Sporadic DC production process time series data modelling and prediction using parameterized jump diffusion process
- Team management of MENG students: bi-weekly meeting, progress report and brainstorm

MERCEDES-BENZ   **Data analyst & Process Engineer Intern,** China, May 2019 – Sep 2019
- Work with professional Method Time Measurement (MTM) Engineer to collect data from assembly line. Conduct further MTM data processing, visualization and data analysis with Python(Pandas) and **Tableau**
- Participated in body shop indirect process optimization project. Conduct SIPOC analysis using Excel on blue collars' working process under instructions of project leaders.

RESEARCH:

Published:
- NeurIPS-2022: First author of paper "A Deep RL framework for Column Generation" – U of T (professor Elias Khalil)
- ICLR-2023: Author of paper "Recursive Time Series Data Augmentation" – U of T (professor Chi-Guhn Lee)
- Nature - Scientific Report: Author of paper "Reducing systemic risk with quantum computing" - U of T, NYU

In progress:
- Physics Inspired neural networks for option pricing - NYU (professor David Shimko and professor Amine Aboussalah)
- Delaying phase transition in financial market cascade failures with games - University of Chicago (professor John Birge) and NYU (professor Amine Aboussalah)

Invited talks:
Research Symposium, Vector institute, Toronto, 2/22/2023; SIAM Conference on Optimization, Seattle, 05/31/2023
Poster workshop on Quantum Computing and Operations Research, Fields institute, Toronto, 10/22/2022

START-UP: DEEPALPHA FinTech firm that provides data-driven portfolio management services for subscribed clients, Co-founded on 2022

Quantitative researcher, Software developer
- Algorithm development for portfolio management using RL, math finance and stochastic optimal control.
- Collaborating with Software Development team, successfully built an end-to-end trading pipeline including financial data processing, Alpha factor engineering, ML model selection, strategy back testing, paper trading and online trading.