TIANYU ZHANG

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EDUCATION

Ph. D. in Computer Science, University of Alberta, Canada — 2019 - 2023
Advised by Omid Ardakanian — GPA: 4/4
Recipient of the Alberta Graduate Excellence Scholarship (Issued by Government of Alberta, Canada) — h-index: 12
2025 ACM SIGEnergy Doctoral Dissertation Award Honorable Mention

Master of Science in Computer Science, University of Alberta, Canada — 2017 - 2019
Advised by Omid Ardakanian — GPA: 4/4
Runner-up of the Departmental Outstanding Master Thesis Award

Bachelor of Science with Honors in Computer Science, University of Alberta, Canada — 2013 - 2017
Recipient of three ICPC regional contest medals — GPA: 3.8/4

WORK EXPERIENCES

Senior AI Research Scientist, Autodesk Research, Autodesk AI Lab — March 2024 - Present
Director: Tonya Custis

- **LLM-enhanced CAD for manufacturing**: Applied Large Language Models (LLMs) to optimize computer-aided design (CAD) workflows in manufacturing, adding constraints to regularize design sketches, improving design precision and reducing production time.
- **RL for LLM fine-tuning**: Developed reinforcement learning (RL)-based fine-tuning strategies to align LLM outputs with the foundation models. Designed reward functions and implemented online/offline RL pipelines, significantly improving model reliability, controllability, and generalization across diverse tasks.

Research Assistant & Postdoc Fellow, University of Alberta, Sustainable Computing Lab — April 2018 - March 2024
Advisor: Omid Ardakanian

- **Research coding:** Implemented and customized various machine learning models for research purposes, such as LSTM, GCNN, ICNN, VAE, PPO, SAC, DDPG, and more, all built from scratch.
- **Large data processing**: Handled simulated and real-world uncleaned data of terabyte magnitude stored on the cloud. The data were processed on the Canada's national high-performance compute system.
- **Open-source developments**: Two open-source platforms for RL-based simulation and ML-based evaluation were developed and contributed to the intergovernmental organization, the International Energy Agency (IEA).
- **Collaborations**: Global collaboration with researchers led to 14 publications in esteemed peer-reviewed journals and premier international conferences focusing on reinforcement learning and machine learning. The complete list of publications is available on my webpage.

SELECTED HONORS AND AWARDS

ACM SIGEnergy Doctoral Dissertation Award Honorable Mention — **2025**
Departmental Outstanding PhD Thesis Award Nomination — **2023**
Alberta Graduate Excellence Scholarship — **2022 - 2023**
University of Alberta Mary Louise Imrie Graduate Student Award — 2019, 2022
NeurIPS ML4CO Competition Dual Task Runner-up — **2021**
ACM BuildSys Best Poster Runner-up — **2020**
Departmental Outstanding Master Thesis Award Runner-up — **2020**
University of Alberta Graduate Student Teaching Award — **2020**
University of Alberta Dean's Honor Roll & First Class Standing — 2015 - 2017
North America ACM-ICPC Regional Contest Medal — 2015, 2016, 2017

SKILLS

Expertise: Reinforcement Learning, Transfer Learning, Combinatorial Optimization, Machine Learning, Time-series Forecasting
Programming: C/C++, Python, Java, PHP, HTML, CSS, Kotlin, Matlab, R, EPL, Bash
Machine Learning Tools: PyTorch, TensorFlow, Cvxpy, SciPy, Matplotlib, Seaborn, NLTK, Scikit-learn
Applications/Frameworks: GitHub, MySQL, Google Cloud, Slurm, Django, EnergyPlus, SketchUp
Data Analysis: Pandas, Numpy, Excel, SPSS, SAS
Languages: English (Professional working proficiency), Chinese - Mandarin (Native)
Others: Algorithms, Machine learning models, Mathematical modelling, Academic writing