Pengcheng Wang

763 Bay Street, Toronto, ON, M5G 2R3 ✳ pw29@illinois.edu ✳ (+1) 4373612138

EDUCATION

University of Toronto, Toronto, ON   **Sept 2020 to May 2025**

Bachelor of Applied Science in Computer Engineering, Minor in AI Engineering

- **CGPA**: 3.82/4.0
- **Honors & Awards**: Consecutive three years awarded the Engineering Dean's honor list; Obtained $6400 T-CAIREM 2022 Healthcare AI research scholarship

CONFERENCE & JOURNAL PROCEEDINGS

- Y Wu, X Gao, Z Liu, **P Wang**, Z Wu, Y Li, T Zhang, T Liu, T Liu, X Li, Decoding cortical folding patterns in marmosets using machine learning and large language model. In: NeuroImage, Volume 308, 2025.
- H Zhang*, **P Wang***, S Diao, Y Lin, R Pan, H Dong, D Zhang, P Molchanov, T Zhang, Entropy-Regularized Process Reward Model. In: Preprint under review.
- S Diao, **P Wang,** Y Lin, T Zhang, Active prompting with chain-of-thought for large language models. In: Association for Computational Linguistics *(ACL) Conference 2024*.

PROJECT & RESEARCH EXPERIENCE

Entropy-Regularized Process Reward Model   **June 2024 to Oct 2024**

Research Assistant; Supervisors: Dr. Shizhe Diao (Nvidia) & Prof. Tong Zhang (UIUC)

- Implemented Entropy-Regularized process reward in reward model training and evaluation.
- Implemented RAFT and DPO algorithm in RLHF pipeline to improve policy model's math reasoning ability.
- Released Project Page: https://hanningzhang.github.io/math-prm/

Active Prompting with Chain-of-Thought for Large Language Models   **Dec 2022 to March 2023**

Research Assistant; Supervisors: Dr. Shizhe Diao & Prof. Tong Zhang (HKUST)

- Designed and implemented experiments for prompt question selection strategy through active learning.
- Conducted prompt engineering to the selected questions and reached new SOTA on multiple reasoning tasks with GPT3.

Pneumothorax DiNA Transformer, Toronto, ON   **Sept 2022 to Dec 2022**

Student; Instructor: Prof. Kaveh Hassani

- Implemented Dilated Neighborhood Attention Transformer for Chest X-ray Pneumothorax Segmentation.
- Performed comprehensive benchmarking on Transformer based model for performance comparison.

ICU RL Benchmark Dataset for Dosage Prediction, Toronto, ON   **May 2022 to Sept 2022**

Research Assistant; Worked at The Hospital for Sick Children, under the supervision of Dr. Alistair Johnson.

- Built clinical benchmarking datasets for Reinforcement Learning tasks with the MIMIC-IV database.
- Implemented deep learning baseline of optimal dosing prediction tasks for two ICU medications (heparin and vancomycin).

WORK EXPERIENCE

Huawei Technologies Canada, Toronto, Ontario   **May 2023 to May 2024**

Assistant Engineer, Worked at Performance Team of Distributed Database Group

- Maintaining testing framework of distributed database and investigate performance problems.
- Implement lockless cache to store CSN for MVCC mechanism of Huawei GaussDB, reducing transaction delay.
- Design in-memory WAL compression to reduce size of xlog (redo log) written to disk, which decreases IO delay.
- Design new collaboration mode between worker thread and backend flusher thread, addressing the problem of flusher's busy waiting due to suspended worker thread by CPU scheduler.

TEACHING EXPERIENCE

Easy Education, Toronto, Ontario   **Sept 2021 to Dec 2021**

Teaching Assistant

- Hosted tutorials on first-year engineering Linear Algebra every two weeks, guiding students on how to solve past year difficult problems and review concepts before tests.
- Conducted weekly Q&A sessions and answered most of questions that did not violate academic integrity.

SKILLS

Programming Languages: C/C++, Python, Bash, SQL, MATLAB, ARMv7 Assembly

Tools: PyTorch, vLLM, Hugging Face Libraries, Fine-tuning & Acceleration tools, PostgreSQL, Jenkins, Linux Servers