

Xiaowen Zhang

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Education

University of Toronto

BSc IN COMPUTER SCIENCE

- Minors in Mathematics and Statistics

Toronto, Canada

2023-09 — 2026-12 (Expected)

Publications

* equal contribution

Zongliang Ji*, Yifei Sun*, Zecen Ding*, **Xiaowen Zhang***, Stefan Hegselmann, Andre Carlos Kajdacsy-Balla Amaral, Anna Goldenberg, Rahul G Krishnan (2026). PORTER: Portable Representations for Transferable Electronic Health Records. In The Third Workshop on GenAI for Health: Agentic Systems, Clinical Trust, and Future Potential.

Awards

2025	Dr. James A. & Connie P. Dickson Scholarship In Science & Mathematics, University of Toronto	\$500
	University of Toronto Research Excellence Award, University of Toronto	\$9,000
	Samuel Joseph Granatstein Scholarship, University of Toronto	\$659

Teaching Experience

Fall 2025 CSC465 Formal Methods in Software Design, Teaching Assistant

University of
Toronto

Selected Projects

Successor-feature Based EfficientZero

2026-06 — 2026-09

SUPERVISOR: PROF. IGOR GILITSCHENSKI

- Extended EfficientZero with an auxiliary head predicting the average MCTS search-tree representation, incorporating search-derived supervision beyond one-step dynamics.
- Conducted hundreds of experiments on Atari environments; identified degenerate solutions and found that additional constraints, including orthogonality, failed to improve control-relevant representations.

RLVR with LLM Critic

2025-11 — 2026-05

SUPERVISOR: PROF. RAHUL G KRISHNAN

- Developed a graph-pathfinding proxy for math reasoning with oracle critic and ground-truth step-level labels, accelerating GRPO experiments by over 10 times; the oracle critic improved actor accuracy by 9.3 percentage points (19% relative) over the no-critic baseline.
- Investigated treatment-effect-based critic rewards, identifying degenerate critic policies dependent on actor capability and distinct reward-granularity requirements for edge validity and progress.

Contextual Finetuning for Vision Language Models

2025-05 — 2025-10

SUPERVISOR: PROF. RAHUL G KRISHNAN

- Evaluated contextual finetuning of 3B–14B VLMs on medical image and surgical video QA, including 17k-token multimodal inputs; observed task-dependent gains but no consistent improvement across settings.
- Constructed synthetic visual-grounding tasks and analyzed spatial attention, finding improved attention localization after finetuning and a positive association between relevant-region attention and accuracy.