ARYAMAN BANSAL

aryaman.bansal@mail.utoronto.ca | github.com/aryaman1802 | aryaman1802.github.io/ | linkedin.com/in/aryaman1802

EDUCATION

University of Toronto, Dalla Lana School of Public Health 2026 - 2028
- Master of Science in Biostatistics

University of Toronto, Faculty of Arts & Science 2022 - 2026
- Honors Bachelor of Science, Double Major in Statistics and Physics (With Distinction)

EXPERIENCE

ML Student Researcher, Dr. Gregory Schwartz's Lab, University Health Network August 2025 - Present

- Built HESSNet, a deep generative model that virtually stains H&E images before segmentation, raising Cellpose's Dice score by 81% for cells and by 24% for nuclei.

ML Student Researcher, Dr. Osama Abdin's Lab, The Hospital for Sick Children May 2026 - August 2026

- Adapted and trained Boltz-2 for protein-peptide binding affinity prediction.

ML Student Researcher, Dr. Andrei Swidinsky's Lab, University of Toronto September 2025 - April 2026

- Built an environment for simulating geological carbon storage based on CO_2 buoyancy, including time-lapse gravity and borehole gravity measurements. Allows for rapid experimentation with RL algorithms.

ML Student Researcher, Dr. Divya Sharma's Lab, Dalla Lana School of Public Health May 2025 - April 2026

- Built Archetype DT, a Multi-Objective Decision Transformer model which improved FQE by 30% against single-objective offline RL algorithms for personalized treatment strategy.

ML Student Researcher, Dr. Haibo Zhang's Lab, Unity Health Toronto July 2024 - August 2025

- Applied ML models to test the efficacy of Electrical Impedance Tomography over Computed Tomography and the use of randomized vs. constant ventilation strategies for developing robust ML models. Further built a Physics-Informed VAE to generate synthetic mechanical ventilation data which helped cut validation RMSE by 11%.

RESEARCH PAPERS

Bansal, A., Ji, J., and Sharma, D. (2025). Benchmarking Offline Multi-Objective Reinforcement Learning in Critical Care. Joint Statistical Meetings, 2026. (arXiv:2512.08012)

Bansal, A., Dong, Z. F., and Schwartz, G. W. (2026). Virtually Stain First, Segment Second: Using Task-Aware Virtual Staining for Improving Cell and Nucleus Segmentation. *(coming soon)*

POSTER PRESENTATIONS

Integration of Machine Learning with Bioimaging-Based Feature Ranking for Predicting Ventilator-Induced Lung Injury

- ROP Poster Fair University of Toronto March 2025

Developing a Deep Learning Model for Protein-Peptide Binding Affinity Prediction

- SSuRe Symposium Day The Hospital for Sick Children August 2026
- SUDS Showcase Data Sciences Institute August 2026

AWARDS

Data Sciences Institute SUDS Scholar, University of Toronto CAD 7200 2026
University College Graduation Award, University of Toronto CAD 1000 2026

KAGGLE COMPETITION (SOLO)

Regression with a Crab Age Dataset Rank: 165/1429