

# Shihao(Rex) Ma

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CONTACT INFORMATION	108 College St Toronto, ON M5G 0C6	rex.ma@mail.utoronto.ca <a href="#">google scholar</a>
EDUCATION	<b>University of Toronto</b> , Ontario, Canada Ph.D. in Computer Sciences <ul style="list-style-type: none"><li>• Supervisory Committee: Bo Wang, Anna Goldenberg, Benjamin Haibe-Kains</li><li>• Research Focus: Multimodal integration, genomic foundational model, LLM in biology</li></ul> <b>University of Toronto</b> , Ontario, Canada B.A.Sc in Computer Engineering, GPA: 3.87/4.00	Sept. 2020 -    Sept. 2015 - June 2020
EXPERIENCE	<b>Vector Institute for Artificial Intelligence</b> , Toronto, Canada <i>Machine Learning Researcher</i>  <b>Fable Therapeutics</b> , Toronto, Canada <i>Intern Research Scientist</i> <ul style="list-style-type: none"><li>• De novo antibody protein design, 3D geometric deep learning, protein structure generation.</li></ul> <b>University Health Network</b> , Toronto, Canada <i>Intern Machine Learning Engineering</i> <ul style="list-style-type: none"><li>• Prognosis prediction of patients with heart failure, deep learning for single-cell RNA-seq data.</li></ul> <b>IBM - DB2 Availability &amp; Recovery Domain</b> , Toronto, Canada <i>Intern Software Engineering</i> <ul style="list-style-type: none"><li>• Created a prototype for Goldman Sachs to improve exclusive database access for Db2 offline utility commands.</li><li>• Addressed over 60 recovery defects in the DB2 code base.</li></ul>	Sept. 2020 - present   May 2022 - Aug. 2022   May 2019 - Aug. 2019   May 2017 - May 2018
PUBLICATIONS	<p>Ma, S. et al. Moving towards genome-wide data integration for patient stratification with Integrate Any Omics. <i>Nature Machine Intelligence</i>, 7, p29-42 (2025) [<a href="#">Paper</a>]</p> <p>Xu, Y., Ma, S., Cui, H. et al. AGILE platform: a deep learning powered approach to accelerate LNP development for mRNA delivery. <i>Nature Communication</i>, 15, 6305 (2024). [<a href="#">Co-first author</a>] [<a href="#">Paper</a>]</p> <p>Douglas L., Ma, S. et al. Predictors of mortality among long-term care residents with SARS-CoV-2 infection. <i>Journal of the American Geriatrics Society</i>, 69, p3377-3388 (2021) [<a href="#">Co-first author</a>][<a href="#">Paper</a>]</p> <p>Abdul, K., Ma, S. et al. Comparison of machine learning and conventional statistical modeling for predicting readmission following acute heart failure hospitalization <i>American Heart Journal</i>, 277, p93-103 (2024). [<a href="#">Paper</a>]</p> <p>Austin, D., Douglas L., Wang C., Ma, S. et al. Comparison of machine learning and the regression-based EHMRG model for predicting early mortality in acute heart failure <i>International Journal of Cardiology</i>, 65, p78-84 (2022). [<a href="#">Paper</a>]</p> <p>Douglas L., Wang C., McAlister F. Ma, S. et al. Factors associated with SARS-CoV-2 test positivity in long-term care homes: a population-based cohort analysis using machine learning <i>The Lancet Regional Health-Americas</i>, 6, 100146 (2022). [<a href="#">Paper</a>]</p> <p>Ma, J., Zhang Y., Gu S., Ge Cheng., Ma, S. et al. Unleashing the strengths of unlabelled data in deep</p>	

learning-assisted pan-cancer abdominal organ quantification: the FLARE22 challenge *The Lancet Digital Health*, Volume 6, Issue 11, e815 - e826 (2024). [[Paper](#)]

Nitski, O., Azhie A., Qazi F., Wang X., Ma, S. et al. Long-term mortality risk stratification of liver transplant recipients: real-time application of deep learning algorithms on longitudinal data. *The Lancet Digital Health*, Volume 3, Issue 5, e295 - e305 (2021). [[Paper](#)]

HONORS AND AWARDS	University of Toronto Computer Science Departmental Fellowship	2023-2024
	University of Toronto Computer Science Departmental Fellowship	2022-2023
	Undergraduate Research Opportunity Program (UROP) Awards	2018

TEACHING EXPERIENCE	<b>University of Toronto</b> , Toronto, Canada	
	<i>Teaching Assistant</i>	
	CSC413/CSC2516 - Neural Networks and Deep Learning	Fall 2024
	CSC108 - Introduction to Computer Programming	Winter 2024
	CSC413/CSC2516 - Neural Networks and Deep Learning (Head TA)	Winter 2023
	CSC413/CSC2516 - Neural Networks and Deep Learning	Winter 2022
	CSC110 - Foundations of Computer Science	Fall 2021
	CSC413/CSC2516 - Neural Networks and Deep Learning	Winter 2021
	CSC108 - Introduction to Computer Programming	Fall 2020

COMPUTER SKILLS	<ul style="list-style-type: none"> <li>• Proficient with: Python, C++, R, Git, Linus, Agile (Scrum)</li> <li>• Familiar with: HTML5, SQL, CSS, Java, Matlab</li> <li>• Soft skills: Public Speaker, Motivator, Collaborator, Leader</li> </ul>
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