

Stanley Z. Hua

437-986-3444 | stanley.hua@mail.utoronto.ca | [linkedin](#) | [github](#) | [website](#)

EDUCATION

University of Toronto

H. BSc. in Computer Science and Bioinformatics (GPA: 3.84/4)

Toronto, CA

Sept. 2019 – Present

EXPERIENCE

Student Researcher

Sept. 2021 – Present

The Hospital for Sick Children (Goldenberg Lab)

Toronto, CA

- Adapting state-of-the-art spatiotemporal deep learning methods to predict a pediatric disease given a sequence of kidney ultrasound images taken over multiple hospital visits using PyTorch.

Student Researcher

May 2021 – Sept. 2021

University of Toronto (Moses Lab)

Toronto, CA

- Curated a large-scale dataset **CytoImageNet** (890K images, 894 classes) of open-source microscopy images.
- Preprocessed 20 TB of microscopy image data from 40 datasets using pandas, NumPy and Open-CV.
- Pretrained convolutional deep learning models on CytoImageNet using Tensorflow and Keras.
- Demonstrated that fusion of CytoImageNet and ImageNet learnt features is the new state-of-the-art in bioimage transfer learning. This provides biologists a new automated means to extract information from microscopy images.

Student Researcher

Jul. 2020 – Jul. 2021

University of Toronto (Tyrrell Lab)

Toronto, CA

- Evaluated the robustness of clustering (K-Means) under varying number of principal components (PCA).
- Improved a method for measuring data heterogeneity's effect on convolutional model training.
- Preprocessed pediatric brain 3D MRI images using FSL and Python NiBabel.

PROJECTS

Matrix: A Math Worksheet Generator Application | *Java, Git*

Sept. 2021 – Dec. 2021

- Using Git version control, worked in a team of six to create an application that generates math worksheets.
- Designed code for local storage/retrieval of user info & history using Dependency Injection and Facade patterns.
- Refactored equation generation code to follow the Strategy design pattern to remove redundancy.

RANZCR CLiP Competition | *Tensorflow, Keras, Pandas, NumPy*

Jan. 2021 – Mar. 2021

- Tuned convolutional deep learning models (EfficientNetB4, ResNet50) to predict the improper placement and/or imaging of catheters in chest x-rays. Achieved an AUC of 0.87, scoring higher than 200 teams.

TECHNICAL SKILLS

Languages: Python, R, SQL, Shell Script, Java, HTML/CSS, Assembly

Technical Skills: Data Cleaning, Data Visualization, Dimensionality Reduction, Clustering, Deep Learning

Python Libraries: pandas, dask, numpy, matplotlib, tensorflow, keras, pytorch, scikit-learn, PIL, open-cv

R Libraries: tidyverse, dplyr, ggplot2, shiny, blogdown, rvest

HONORS & AWARDS

2021 **University of Toronto CSB Undergraduate Research Award**, \$4000

2021 **The F. M. Hill Scholarship in Biology**, \$1100

2020-21 **University of Toronto Dean's List Award**

CONFERENCE PRESENTATIONS

CytoImageNet: A large-scale pretraining dataset for bioimage transfer learning

NeurIPS 2021 (Learning Meaningful Representations of Life Workshop)