

# Stanley Z. Hua

Data Enthusiast ♦ Toronto, Canada

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## EDUCATION

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### University of Toronto

Toronto, CA

Honours BS Computer Science Specialist, Statistics Minor (GPA: 3.86/4)

Sept. 2019 – May 2024 (*Expected*)

## TECHNICAL SKILLS

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**Languages:** Python, SQL, Shell Script, Git, Javascript, HTML/CSS, C/C++, Java, R, Assembly

**Software Tools:** GitHub, AWS, Perforce, Azure ML

**Data Skills:** Machine Learning, Computer Vision, Time-Series, Data Visualization, Clustering, Dim. Reduction

**Python Libraries:** Pandas, NumPy, Scikit-Learn, PyTorch, Tensorflow, Matplotlib, Dask, psycopg2, OpenCV, Selenium

## EXPERIENCE

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### Software Engineer Intern

May 2022 – Present

*Intel Corporation*

*Toronto, CA*

- Optimized SQL (and Python Pandas) code for an existing dashboard, speeding up page loading time by 400%
- Developed a tool using Python, SQL and shell scripting to estimate runtime of queued benchmarking jobs, to prevent users from abusing the job queue.
- Created a dashboard using ChartJS, HTML/CSS and Python, to monitor the volume of CRON jobs every hour.

### Junior ML Specialist

May. 2022 – Present

*The Hospital for Sick Children*

*Toronto, CA*

- Exploring self-supervised methods (SimCLR, MoCo) for modeling ultrasound image sequences
- Productionized MLOps code for data validation (quality checks, unit-testing) and model deployment, forecasting the number of patients in the ER hourly.
- Proposed and implemented a CNN in PyTorch to forecast the number of hourly patients in the ER.
- Explored and implemented Bayesian methods for prediction interval estimation (GP, Bayesian NNs)
- Implemented saving/loading of a complex nested model (scikit-learn and PyTorch).

### AI Research Student

Sept. 2021 – May. 2022

*The Hospital for Sick Children (Goldenberg Lab)*

*Toronto, CA*

- Adapted deep learning methods from video modeling (Conv.Pooling, CNN-LSTM, TSM) to improve prediction of a kidney disease from medical images (ultrasound) taken over multiple hospital visits using PyTorch.
- Assessed model performance based on key metrics (AUROC, AUPRC) with bootstrapped confidence intervals.
- Demonstrated that multi-visit image models do not outperform single-visit models in predicting obstruction.

### AI Research Student

May 2021 – Sept. 2021

*University of Toronto (Moses Lab)*

*Toronto, CA*

- Created a large-scale dataset **CytoImageNet** (890K images, 894 classes) from 20 TB of open-source microscopy images (and tabular metadata) using Python (pandas, numpy, opencv) and shell scripting.
- Pretrained deep convolutional models (EfficientNetB0) on CytoImageNet using Tensorflow Keras, providing biologists a new means to extract information from microscopy images.
- The CytoImageNet dataset has attracted attention on Kaggle (4879 views, 454 downloads).

## CONFERENCE PRESENTATIONS

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

NeurIPS 2021 (*Learning Meaningful Representations of Life Workshop*)

### From Single-Visit to Multi-Visit Image-Based Models: Single-Visit Models are Enough to Predict Obstructive Hydronephrosis

SIPAIM 2022 (*International Symposium on Medical Information Processing and Analysis*)

## HONORS & AWARDS

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

2020-22    **Dean's List Award**