

# Stanley Z. Hua

Toronto, Canada

(+1) 4379863444 | [stanley.hua@mail.utoronto.ca](mailto:stanley.hua@mail.utoronto.ca) | [linkedin](#) | [github](#) | [website](#)

## EDUCATION

### University of Toronto

Toronto, CA

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

Sept. 2019 – June 2024 (Expected)

## TECHNICAL SKILLS

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

**Software Tools:** Airflow, AWS, Docker, GitHub, Redis, Figma

**Data Skills:** Data Engineering, Data Visualization, Machine Learning, Computer Vision, NLP

**Python Libraries:** Pandas, NumPy, Matplotlib, Dask, Ray, psycpg2

**ML Libraries:** PyTorch, Tensorflow, Scikit-Learn, MLFlow

**CV/NLP Libraries:** Transformers, Langchain, Guardrails, nltk, OpenCV

## EXPERIENCE

### Data Science Intern

June 2023 – Sept. 2023

Wealthsimple

Toronto, CA

- Designed, implemented and deployed model to an API endpoint that detects if a user entered invalid account details when initiating an account transfer, potentially saving \$12M in flagged transfers annually.
- Coleading project to create a general-purpose text labeling engine using LLMs. Defined requirements, tested various prompting strategies and added output validation with guardrails.

### Junior ML Specialist

May 2022 – Aug. 2023

The Hospital for Sick Children

Toronto, CA

- Showed that (MoCo) self-supervised pretraining improves in-domain **and** out-of-domain generalization for view labeling task on renal ultrasound videos.
- Implemented CNN to forecast ER patient volumes, and explored Bayesian methods for confidence interval estimation (GP, Bayesian NNs).

### Software Engineer Intern

May 2022 – May 2023

Intel Corporation

Toronto, CA

- Refactored a core tool that allows users to easily access data for benchmarking experiments from the database and file system, resulting in improved code architecture, efficiency, test coverage (99%) and backwards-compatibility.
- Saved over 1.5K hours of cloud compute, by developing a tool (in Python/SQL) to estimate runtime of queued benchmarking jobs to prevent users from abusing the high priority job queue.
- Constructed a ChartJS dashboard to monitor the number of CRON jobs starting every hour, and a tool to assist in rescheduling CRONs. This led to a decrease in volume of jobs launched per minute, increasing stability of jobs.

### AI Research Student

Sept. 2021 – May 2022

The Hospital for Sick Children (Goldenberg Lab)

Toronto, CA

- Adapted video-based deep learning methods (Conv.Pooling, CNN-LSTM, TSM) to predict the need for kidney surgery from medical (ultrasound) images taken over multiple hospital visits using PyTorch.
- Demonstrated positive finding that single-visit conv. models are enough to predict the need for surgery.

### AI Research Student

May 2021 – Sept. 2021

University of Toronto (Moses Lab)

Toronto, CA

- Created the **CytoImageNet** dataset (890K images, 894 classes) from 20 TB of open-source microscopy images.
- Showed that CytoImageNet-pretrained features are competitive with ImageNet features on downstream datasets.
- The CytoImageNet dataset has attracted attention on Kaggle (10696 views, 526 downloads).

### ML Research Student

Jul. 2020 – Jul. 2021

University of Toronto (Tyrrell Lab)

Toronto, CA

- Investigated the effect of dimensionality reduction (PCA, autoencoder) on clustering (K-Means, DBSCAN, Agglomerative) of medical images under small sample sizes using Tensorflow-Keras and scikit-learn.
- Performed data cleaning and validation of 3D brain MRI images using FSL and Python NiBabel

## PUBLICATIONS

---

**Hua SBZ**, Lu AX, Moses AM. CytoImageNet: A large-scale pretraining dataset for bioimage transfer learning. NeurIPS Workshop on Learning Meaningful Representations for Life. 2021 Dec.

**Hua SBZ**, Rickard M, Weaver J, Xiang A, Alvarez D, Velear KN, Sheth K, Tasian GE, Lorenzo AJ, Goldenberg A, Erdman L. From Single-Visit to Multi-Visit Image-Based Models: Single-Visit Models are Enough to Predict Obstructive Hydronephrosis. 18th Symposium on Medical Information Processing and Analysis (SIPAIM). 2022 Nov.

## CONFERENCE POSTERS

---

**Supervised Contrastive Learning for Improved View Labeling in Pediatric Renal Ultrasound Videos**  
ISBI 2023 (Cartagena, Colombia)

**\*Longitudinal Image-Based Prediction of Surgical Intervention in Hydronephrosis Patients: Perhaps Earlier Decision-Making Is Possible!**

ESPU 2023 (Lisbon, Portugal)

\*Not presenter

## INVITED TALKS

---

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

Models, Inference & Algorithms Seminar, Broad Institute

Boston, USA, October 25th, 2023

## HONORS & AWARDS

---

2023 **Samuel Beatty Fund Travel Grant**, \$600 (Declined)

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

2020-22 **Dean's List Award**

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

## EXTRACURRICULAR ACTIVITIES

---

**Teaching Assistant** June 2021 – Aug. 2021  
*University of Toronto – Independent Summer Statistics Community* Toronto, CA

- Organized data science - related workshops for undergraduate statistics students.
- Presented hands-on workshop introducing the Pandas library.

**Club President & Founder** Sept. 2021 – Sept. 2022  
*University of Toronto – Offline* Toronto, CA

- Led a team to build an online community of 200+ undergraduate students on Discord during the pandemic.
- Hosted multiple game nights and movie nights.

**Events Coordinator** May 2020 – May 2021  
*University of Toronto – Table Tennis Club* Toronto, CA

- Led new initiatives to increase social media presence (sharing table tennis matches, player highlights, infographics)

**General Council Member** Sept. 2020 – May 2021  
*University of Toronto – Bioinformatics & Computational Biology Student Union* Toronto, CA

- Assisted in planning of online social activities for bioinformatics undergraduate students.

**Volunteer Chess Teacher** Aug. 2020 – Aug. 2020  
*Kensington Health – Second Mile Club* Toronto, CA

- Organized, promoted and hosted two beginner chess workshops for seniors.

**Volunteer Photographer** Feb. 2020 – Feb. 2020  
*West Neighborhood House* Toronto, CA

- Helped promote the non-profit's community services through capturing photos and videos.