# Lyndon **Chan**

Data Scientist · Machine Learning Researcher

*Markham, ON, Canada*

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## Skills

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|---|---|
| **Expertise** | Machine Learning (regression, neural networks, abnormality detection), Computer Vision (classification CNN, detection, segmentation), NLP (search engine, NER), Time-Series Analysis (RNN, forecasting) |
| **Programming** | Python, MATLAB, C/C++, Java, R |
| **ML/Data Science** | Keras, TensorFlow, PyTorch, NumPy, Scikit-learn, Pandas, Power BI |
| **DevOps** | Git, GitHub, SQL, SQL Server, Azure, REST API |
| **Languages** | English (native), Cantonese (fluent), Mandarin (proficient) |

## Education

### University of Toronto

*Toronto, Ontario, Canada*

M.A.Sc. in Electrical Engineering

*Sep 2017 - Jun 2020*

Thesis: *Weakly-Supervised Semantic Segmentation in the Multi-Class Setting across Different Image Domains*, supervised by Konstantinos Plataniotis & Parham Aarabi

Courses: Foundations of Computer Vision (CSC2503H), Random Processes (ECE537H1), Signal Processing (ECE1512H), Convex Optimization (ECE1505H), Object Modelling and Recognition (CSC2523H)

### University of Toronto

*Toronto, Ontario, Canada*

B.A.Sc. in Electrical Engineering (with Distinction)

*Sep 2012 - Jun 2017*

- GPA: 3.64 / 4.0 (17th of 129)
- Areas: “Control, Communications & Signal Processing”, “Analog & Digital Electronics”, “Software”
- Capstone: “DARI: Depth-variable Augmented Reality Interface” (won Gordon Slemon Design Award)

## Publications

### Journal Publications

- M. S. Hosseini, **L. Chan**, W. Huang, Y. Wang, D. Hasan, C. Rowsell, K. N. Plataniotis, and S. Damaskinos, “Can Histology Knowledge be Transferred for Histopathology Analysis?,” in Proceedings of the *European Conference on Computer Vision (ECCV)*, 2020. (submitted)
- **L. Chan**, M. S. Hosseini, C. Rowsell, K. N. Plataniotis, and S. Damaskinos, “HistoSegNet: Semantic Segmentation of Histological Tissue Type in Whole Slide Images,” in *International Conference on Computer Vision (ICCV)*, October 2019, pp. 10662-10671. (paper) (code)
- M. S. Hosseini, **L. Chan**, G. Tse, M. Tang, J. Deng, S. Norouzi, C. Rowsell, K. N. Plataniotis, and S. Damaskinos, “Atlas of Digital Pathology: A Generalized Hierarchical Histological Tissue Type-Annotated Database for Deep Learning,” in Proceedings of the *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2019, pp. 11747–11756. (paper) (website)

### Conference Papers

- **L. Chan**, M. S. Hosseini, K. N. Plataniotis, “A Comprehensive Analysis of Weakly-Supervised Semantic Segmentation in Different Image Domains,” in *International Journal of Computer Vision (IJCV)*, 2020. (pre-print) (code)
- M. S. Hosseini, Y. Zhang, **L. Chan**, J. A. Brawley-Hayes, and S. Damaskinos, “Focus Quality Assessment of High-Throughput Whole Slide Imaging in Digital Pathology,” in *IEEE Transactions on Medical Imaging (TMI)*, 2019. (paper) (code)

## Experience

### Alphabyte Solutions

*Vaughan, Ontario, Canada*

Data Scientist

*May 2020 - present*

- Implemented an adaptable labour forecasting algorithm using Scikit-learn, Flask, RESTful API, and SQL.

### University of Toronto (Multimedia Lab)

*Toronto, Ontario, Canada*

Graduate Researcher

*Sep 2017 - May 2020*

- Developed novel semantic segmentation algorithm, evaluated state-of-the-art segmentation techniques, compiled image dataset for computational pathology tool with Huron Digital Pathology, and unpublished compiled study of backpropagation in neural networks.
- Advised LG Science Park on development of anomaly detection tool for industrial images, served as student reviewer for CVPR 2020.

### University of Toronto (Multimedia Lab)

*Toronto, Ontario, Canada*

Undergraduate Researcher

*May 2017 - Aug 2020*

- Designed novel image classification network with fixed maximally-polynomial kernels, and optimized for efficient training on limited pathology images.

### Qualcomm Canada

*Toronto, Ontario, Canada*

Interim Engineering Intern

*May 2015 - Aug 2016*

- Built unit/functional test frameworks for optical flow, cadence detection, image sharpening, and compression (OpenCV, C/C++).
- Operated image quality assessment and camera calibration lab, and competed in two internal hackathons (Arduino, ROS).

### Hong Kong University of Science and Technology (Human Language Technology Centre)

*New Territories, Hong Kong*

Undergraduate Visiting Research Intern

*Jun 2014 - Aug 2014*

- Implemented web scraping bot (Selenium, Python), unsupervised clustering of user personalities by country from OkCupid (Scikit-learn, PCA).
- Performed social media post scraper from Sina Weibo (Web API, Python), analyzed song popularity.

## Teaching

### University of Toronto

*Toronto, Ontario, Canada*

Head TA, ECE1512: Digital Image Processing and Applications

*Sep 2019 - Dec 2019*

- Designed and marked assignments (Turnitin, Canvas) and final project for graduate-level course on CNN classification, XAI.

### University of Toronto

*Toronto, Ontario, Canada*

Head TA, ECE462: Multimedia Systems

*Jan 2018 - Apr 2018*

- Designed and marked lab assignments and quizzes (Blackboard) for undergraduate-level course on image processing and compression, was awarded ECE Student Club Teaching Assistant Award.