Lyndon Chan

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Skills and Expertise

- **Expertise:** Machine Learning (neural networks, SVM), Computer Vision (classification, detection, segmentation, multi-view geometry), Abnormality Detection, Convex Optimization
- **Programming:** Python (Keras, TensorFlow, Caffe), MATLAB, C/C++, Java, Ruby, R
- **Software:** LaTeX, Jupyter Notebook, GitHub, NumPy, Scikit-learn, Pandas, Matplotlib, SQLite
- **Languages:** English (native), Cantonese (fluent), Mandarin (conversational)

Education

University of Toronto — Toronto, Ontario, Canada
M.A.Sc. in Electrical Engineering — 2017-2020

COURSEWORK: computer vision (projective geometry, motion analysis), probability theory, signal processing (linear filtering, spectral analysis), optimization theory (linear programming)

University of Toronto — Toronto, Ontario, Canada
B.A.Sc. in Electrical Engineering (GPA 3.64 / 4.0, 17th of 129) — 2012-2017

COURSEWORK: machine learning (regression, neural networks, Bayesian models), operating systems, image processing, electronics

Work Experience

University of Toronto (Multimedia Lab) — Toronto, Ontario, Canada
Master's Student Research Assistant — Sep 2017-present

- Developed novel semantic segmentation algorithm, compiled image dataset for computational pathology tool with Huron Digital Pathology - yielding Canadian patent, two conference papers
- Advised development of anomaly detection tool for industrial images with LG Science Park
- Served as head TA for an undergraduate and graduate course, student reviewer for CVPR 2020

University of Toronto (Multimedia Lab) — Toronto, Ontario, Canada
Undergraduate Student Research Assistant — May 2017-Aug 2017

Designed novel image classification network with fixed maximally-polynomial kernels, optimized for efficient training on limited pathology images - resulting in a conference paper submission

Qualcomm Canada — Markham, Ontario, Canada
Interim Engineering Intern — May 2015-Aug 2016

Built testing frameworks for image/video processing, cadence detection, optical flow, and compression; operated image quality assessment and camera calibration lab; competed in two internal hackathons

Hong Kong University of Science and Technology (Human Language Technology Centre)
Clear Water Bay, Hong Kong
Undergraduate Visiting Research Intern Jun 2014-Aug 2014

Developed web scraping bot from scratch, conducted unsupervised clustering of OKCupid users by country, predicted song popularity from social media posts on Sina Weibo

Publications

Journal Papers

1. "A Comprehensive Analysis of Weakly-Supervised Semantic Segmentation in Different Image Domains," **International Journal of Computer Vision (IJCV)**, 2020. (pre-print) (code)

2. "Focus Quality Assessment of High-Throughput Whole Slide Imaging in Digital Pathology," **IEEE Transactions on Medical Imaging (TMI)**, 2019. (paper) (code)

Conference Papers

1. "Can Histology Knowledge be Transferred for Histopathology Analysis?," **Conference on Computer Vision and Pattern Recognition (CVPR)**, 2020. (submitted)

2. "HistoSegNet: Semantic Segmentation of Histological Tissue Type in Whole Slide Images," **International Conference on Computer Vision (ICCV)**, 2019. (paper) (code)

3. "Atlas of Digital Pathology: A Generalized Hierarchical Histological Tissue Type-Annotated Database for Deep Learning," **Conference on Computer Vision and Pattern Recognition (CVPR)**, 2019. (paper) (website)

Awards

- 2019: **Conference Grant** (School of Graduate Studies)
- 2018-2019: **University Of Toronto Fellowship** (Department of ECE)
- 2018: **Teaching Assistant Award** (ECE Student Club)
- 2017-2018: **Edward S. Rogers Sr. Graduate Scholarship** (Department of ECE)
- 2017: **Undergraduate Student Research Award** (NSERC)
- 2017: **Gordon R Slemon Capstone Design Award** (Department of ECE)
- 2014: **Centre For International Experience Grant**
- 2012-2017: **Dean's List** (Faculty of Applied Science & Engineering)
- 2012: **Edward S Rogers Sr. Admission Scholarship** (Department of ECE)