# Christopher Leung

1 (+647) 838-2033 | christopherleung@hotmail.ca | www.christopherleung.ca | christopher-g-leung

*1.5 Years in ML Engineering, 16 Months of Internship Experience, Graduate Student & Researcher.*

## Skills

**Languages** Python, Java, C++, Scala, C, R, Shell Script, SQL, VBA
**Technologies** PyTorch, Tensorflow, Keras, scikit-learn, Storm, FlumeJava, Hadoop, Spark

## Work Experience

**Okta** *Toronto, ON*
Software Engineer (Machine Learning) *June 2019 - Present*
- Designed and implemented a machine learning pipeline to detect cyberattacks on client organizations.
- Implemented and improved statistical and machine learning models to protect users against account takeover.
- Discovered an algorithm that beats the state-of-the-art anomaly detection algorithm in runtime and memory consumption while maintaining comparable accuracy (Patent filed).
- Extracted user typing patterns to detect anomalous users with deep learning models via Tensorflow.

**Google** *Mountain View, CA*
Software Engineer Intern *Sept. 2018 - Dec. 2018*
- Improved and optimized existing machine learning model to better detect malicious advertisers in Google Search. Impacted billions of users by increasing area under the precision-recall curve by at least 0.1%.
- Implemented a model that quickly responds to new malicious advertising attacks.
- Transformed hundreds of millions of advertiser behavior samples using FlumeJava.

**Okta** *Toronto, ON*
Software Engineer Intern *May 2018 - Aug. 2018*
- Discovered a model that can identify users through typing habits with an accuracy of over 94%.
- Integrated a typing pattern collection mechanism into both the Okta SSO product and data processing pipeline.
- Presented a proof of concept to stakeholders by using t-SNE dimensionality reduction on collected data.

**IBM** *Markham, ON*
Software Developer Co-op *Sept. 2016 - Apr. 2017*
- Implemented a mutex-like API to handle concurrent file access requests between multiple servers. Designed a system to pre-empt locks based on a time quantum to account for server failures.

## Education

**Georgia Institute of Technology**
Master of Science in Computer Science *In Progress*
- Specialization in Machine Learning - Cumulative GPA: 4.0/4.0

**Stanford University**
Professional Certificate in Artificial Intelligence *In Progress*
- Graduate Courses Completed: NLP, NLU

**University of Waterloo**
(Hons) Bachelor of Computer Science *June 2019*
- Relevant Courses: Machine Learning, Artificial Intelligence, Learning Theory, Neural Networks

## Research Projects

**Listener-Reasoning Speaker** *Short Paper*
Title: Pragmatic Learning via Listener-Reasoned Utterance Augmentation. *Submitting to* ACL 2021
- Invented a meta-learning technique that solves Stanford's Color Reference task with 94.5% accuracy, beating SOTA by 8%.
- Submitting for initial review at *ACL'20* as first author with the help of Prof. Christopher Potts.

**Cost-Balancing Clustering Tree** *Long Paper*
Title: Test-Cost Sensitive Methods for Identifying Nearby Points *arxiv: 2010.03962*
- Solved a new problem in budget-constrained data repair with a proposed Markov Decision Process framework.
- Proposed deep reinforcement learning algorithm which outperforms random policies in the context of cost-based data repair.
- Submitting to *IJCAI'21* as co-author with Kevin Hyun.