

BRANDON LEE

j474lee@uwaterloo.ca | (204) 698-1771 | ljj7975.github.io

EXPERIENCE

Lead Research Scientist – *Roboeye.ai*

Mar. 2020 ~ Present

- Developed a real-time (<1 sec) 6D pose estimation pipeline integrating latest computer vision techniques
 - Depth completion (DFNet) + instance segmentation (Mask R-CNN & SOLOv2 & CondInst) + pose estimation (FCGF & PVN3D) + pose refinement (ICP) + detection filtering (3D NMS)
- Coordinated an R&D team of 20+ engineers to develop data-driven computer vision and robotics solutions
 - Fully automated online model training system using PyTorch, NVIDIA Isaac Sim, OpenCV, and AWS
 - C++ robotics solution for bin-picking tasks using ROS, Qt5, ZeroMQ, Protobuf, OpenCV, and PCL
 - Object detection performance tracking system using AWS, Docker, W&B, Django, and PostgreSQL
- Deployed 100+ bin-picking systems (worth \$2M) that run 24/7 with minimal human interventions

Research Collaborator – *Mozilla Research*

Mar. 2020 ~ Oct. 2020

- Developed Howl, the first fully productionized wake word detection toolkit with web browser support
- Howl's ResNet achieves 97.8% accuracy on Google Speech Commands dataset with only 110K parameters
- Integrated Howl with Firefox Voice providing a completely hands-free experience to Firefox users

Research Scientist – *Samsung Research America*

Apr. 2019 ~ Mar. 2020

- Developed CI-GAN, the first co-clustering technique that exploits generative modeling
 - GAN-based architecture that maximizes mutual information between input data and co-clusters
- Applied co-clustering to user behavior analysis; implemented a user-centric TV program recommendation

Software Engineer (*Co-op*) – *Meta*

Jan. 2018 ~ Apr. 2018

- Implemented a product-level advertisements system using the KNN algorithm
- Increased click-through rate by enriching the quality of both product and user embeddings

PATENTS / PUBLICATIONS

Production-Ready Applied Deep Learning	Packt Publishing 2022
Co-Informatic Generative Adversarial Networks for Efficient Data Co-Clustering	Patent 2021
CI-GAN: Co-Clustering by Information Maximizing Generative Adversarial Networks	ICME 2021
Howl: A Deployed, Open-Source Wake Word Detection System	EMNLP 2020
DeeBERT: Dynamic Early Exiting for Accelerating BERT Inference	ACL 2020
Honkling: In-Browser Personalization for Ubiquitous Keyword Spotting	EMNLP 2019

EDUCATION

Master of Mathematics (*Computer Science*) – Advisor : Prof. Jimmy Lin

University of Waterloo

- Natural language processing, speech recognition, model compression
- Thesis: In-Browser Personalization for Ubiquitous Keyword Spotting

Bachelor of Computer Science

University of Waterloo

- Completed co-operative program and graduated with distinction