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| **BRANDON LEE**  [j474lee@uwaterloo.ca](mailto:j474lee@uwaterloo.ca) **|** (204) 698–1771 **|** [ljj7975.github.io](https://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 PostgresSQL

- 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](https://a.co/6itHST9) *Packt Publishing 2022*

[Co-Informatic Generative Adversarial Networks for Efficient Data Co-Clustering](https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2021066530) *Patent 2021*

[CI­­­-GAN: Co-Clustering by Information Maximizing Generative Adversarial Networks](https://ljj7975.github.io/assets/documents/ci-gan.pdf) *ICME 2021*

[Howl: A Deployed, Open-Source Wake Word Detection System](https://aclanthology.org/2020.nlposs-1.9/) *EMNLP 2020*

[DeeBERT: Dynamic Early Exiting for Accelerating BERT Inference](https://aclanthology.org/2020.acl-main.204/) *ACL 2020*

[Hon­kling: In-Browser Personalization for Ubiquitous Keyword Spotting](https://www.aclweb.org/anthology/D19-3016/) *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