BRANDON LEE

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EXPERIENCE

Research Scientist – *Epson Canada* *Mar. 2023 ~ Present*

Lead Research Scientist – *Roboeye.ai* *Mar. 2020 ~ Mar 2023*

- Developed a real-time (<1 sec) 6D pose estimation pipeline integrating latest computer vision techniques
    - Point cloud reconstruction + instance segmentation (Mask R-CNN & DetectoRS) + pose estimation (FCGF-based RANSAC & 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, Protobuf, OpenCV, and PCL
    - Object detection performance tracking system using AWS, Docker, W&B, Django
- Deployed 50+ bin-picking systems that run 24/7 with minimal human interventions

Research Collaborator – *Mozilla Research* *Mar. 2020 ~ Oct. 2020*

- Developed Howl, wake word detection toolkit for the Firefox's in-browser virtual assistant (Firefox Voice)
- Howl's ResNet achieves 97.8% accuracy on Google Speech Commands dataset with only 110K parameters

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