Hooman **Ramezani**

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EDUCATION

BASc, University of Waterloo (Apr. 23')
Systems Design Engineering
81% Academic Average

Relevant Courses

Pattern Recognition, Intro to Machine Learning, Intro to Deep Learning, Computational Neuroscience

Summary

- Searching for DL position post-graduation
- Applied knowledge in two DL research positions, three DL internships, projects

RESEARCH

Aging In Place | *URA* | *UW Vision and Image Processing Lab* — JAN 2023 - PRESENT

- Developing a nutrition model that is capable of classifying foods and returning their nutritional content to users
- Utilizing **NVIDIA Omniverse** to generate photo-realistic scenes of foods to provide data to semantic segmentation model

Robot Grasp Detection | *URA* | *UW Vision and Image Processing Lab* — OCT 2021 - MAY 2022

- Research design of ML model utilizing PointCloud 3D dataset from LiDAR cameras to learn **optimal grasping points**
- Implementation to be utilized in a robotic arm to quickly analyze objects and decide how to them pick up, developing **Grasp Proposition Network** and **data loader** as a customized architecture within model

EXPERIENCE

Artificial Intelligence Developer | *Advanced Micro Devices* — MAY. 2022 - AUG. 2022

- Optimized DL models for **accelerated inference** (throughput / latency) on AMD **CPUs** utilizing **pruning** and **quantization**
- Built **BERT** pipeline for sentiment analysis, trained with **Few-Shot** techniques, with **80%** faster predictions for users
- Leveraged AMD ZenDNN library to increase performance of **computer vision**, **NLP**, and **recommender system** models

Deep Learning Developer | *DarwinAI* — SEPT. 2021 - DEC. 2021

- Delivered medical classification model to **Pfizer** team which reduced examination time by **40%** for medical practitioners, utilizing **PyTorch CNN** and custom data augmentations to produce highly sensitive and accurate model
- Communicated closely with customers in **manufacturing** and **healthcare** to curate custom deep learning solutions
- Optimized **YOLOv4** computer vision pipeline with **CUDA GPU optimization** (prefetch, parallel processing, cache)

Deep Learning Developer | *Applied Brain Research* — JAN. 2021 - APRIL 2021

- Developed end-to-end pipeline for **drone object-detection** model to identify surface defects on complex structures
- Built **Unreal Engine 4** simulation for data generation mitigating shortage of real-world data, paired with **OpenCV** masking
- Achieved **94%** accuracy using **RCNN** to process video frames tracking **temporal data** with LSTM and **LMU** architecture

Other Backend Developer @ Baron Biosystems (May 2020) | Android Developer @ reebee Inc. (Sept 2019)
QA Developer @ SAP Canada (Jan 2019)

PROJECTS

AutoDiffentiation Deep Learning Library | *SYDE 599* — OCT 2022

- Developed custom autodifferention package for Python based on Numpy, capable of being imported into any file and perform gradient descent on given neural network, functioning as a PyTorch alternative with similar functionality

Nailed-It | *AI-Powered Medical Diagnosis Software* — FEB. 2019

- Designed **CNN image classifier** for early-diagnosis of oxygen-deprivation illnesses through analysis of nail discolouration
- Awarded **2nd** place in UofT HackXplore hackathon for high level of creativity and intuitive front-end (**React)**

Other Kaggle Titanic ML Competition - Placed in top 10% of submissions with Keras NN
Toronto Housing Price Estimator - Developed Lasso ML model to predict Toronto housing prices within 5%