REGINALD MCLEAN

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PUBLICATIONS

"Understanding the Transfer of High-Level Reinforcement Learning Skills Across Diverse Environments," **R. McLean**, K. Yuan, I. Woungang, N.Farsad. *Currently under review at ICLR 2024.*

"Video Language Critic: Transferrable Reward Functions for Language-Conditioned Robotics," M. Alakuijala, **R. McLean**, P. Marttinen, S. Kaski, N. Farsad, I. Woungang, K. Yuan. *Currently under review at ICML 2024.*

"Swarm-Based Algorithms for Neural Network Training," **R. McLean**, B. M. Ombuki-Berman and A.P Engelbrecht. *2020 IEEE International Conference on Systems, Man and Cybernetics* IEEE SMC 2020, Toronto, pp. 2585- 2592, October 2020.

EDUCATION

Doctor of Philosophy: Computer Science   September 2020 - Present

Ryerson University, Toronto, ON

Doctoral Research Entitled: Enabling Effective transfer of skills in multi-task reinforcement learning
- Reinforcement learning, multi-task & meta reinforcement learning, self-supervised learning
- Member of Learning and Inference Algorithms (LIA) Research Group

Master of Science: Computer Science   2017 - 2019

Brock University, St. Catharines, ON

Specialization in Machine Learning and Artificial Intelligence

Research: Swarm-Based Algorithms for Neural Network Training
- Member of Computational Intelligence Research Group (CIRG)

Bachelor of Science: Computing Systems   2013 - 2017

Trent University, Peterborough, ON
- Specialization in Computer Science

RELEVANT EXPERIENCE

Project Manager   September 2022 - Present

Farama Foundation, https://farama.org/
- Project manager and open source contributor for Meta-World
- Design and implementation of best practices for reinforcement learning environments
- Delegation of tasks to colleagues across multiple time zones

Data Scientist Intern   May 2021 - September 2021

RBC, Toronto, ON
- Research and development of AIOps for RBC Applications, using SQL, Pandas, Numpy, and Gradient Boosting

Machine Learning Developer   May 2019 - August 2020

Castle Ridge Asset Management, Toronto, ON
- Led the optimization of Self-Evolving Geno-Synthetic Machine Learning algorithm, achieving a 100-120x speedup
- Executed research based on insights from stakeholders across the company
- Develops software, manage software projects, maintains machine learning algorithms, and automates daily tasks
- Integrated new data sources into machine learning model

TECHNICAL EXPERIENCE

Doctor of Philosophy   September 2020 - Present

Ryerson University, Toronto, ON
Fast Soft-Colour Segmentation
- Implemented the above paper using OpenCV and Pytorch, achieving a difference in performance of less than 0.1%

Naive Bayes Spam Detection
- Implemented a spam detection algorithm in Python, using Natural Language Processing techniques on the data and numpy to implement the Naive Bayes algorithm

A Deep Q-Learning approach for playing Mario Kart
- Implemented a Deep Q-Learning application in PyTorch

Markov Decision Process for Gym Environments
- Implemented the Markov Decision Process from scratch for different environments for OpenAI's Gym

Predicting Winners of NBA Basketball games
- Using a suite of machine learning algorithms to predict the outcome of NBA games from 2010 through 2020, with a maximum accuracy of 68%
- Algorithms used included: Neural networks, gradient boosting, decision trees, and support vector machines

Undergraduate Thesis   January 2017 - April 2017
Trent University, Peterborough, ON
Predicting pitch types of Major League Baseball pitches
- Used R and SQL to scrape the data from MLB websites and R packages
- Used R manipulate, transform, and visualize the data
- Used Microsoft Azure to create machine learning models, with a maximum accuracy of 71%

SKILLS
Machine Learning, Reinforcement Learning, Deep Learning, Computer Vision, Python, C#, C/C++, R, Pandas, NumPy, Data Visualization, Data Cleaning, Command Line, Git & Version Control, SQL, APIs, Probability, Statistics, Hypothesis Testing, Data Manipulation, Problem Solving, Collaboration, Independent Worker, Time Management, Handling Pressure, Leadership, Adaptability

RECOGNITIONS
Queen Elizabeth II Graduate Scholarship in Science and Technology   2021, 2023
Ontario Graduate Scholarship   2022

PRESENTATIONS
Mapping New Knowledges 2019, Brock University: Presented Analysis of Swarm-based Algorithms for Training Neural Networks
Computational Intelligence Research Group Annual Workshop 2018, University of Pretoria, South Africa: Presented Swarm-based Algorithms for Training Neural Networks

Undergraduate Research Conference 2017, Nipissing University: Presented Predicting the Pitch Types of Major League Baseball Pitchers