ALI NAQVI

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SUMMARY

I am passionate about creative algorithms or creative techniques in solving problems. Recently, evolutionary computation and its methodology with reinforcement learning has been an interest to me. I am also interested in deep learning. Currently, I am working on optimization techniques revolving time series forecasting. I'm always eager to acquire new skills, learn about problems that matter most, and find impactful solutions to them.

EDUCATION

McMaster University *Sept 2023 - August 2025 (expected)*
MSc in Computer Science (Thesis)
GPA: 3.90/4.0 (equivalent to 4.0/4 percentage-wise)
Related courses: Evolutionary Computation, Neural Networks with Graphs

University of Windsor *June 2023*
BSc Of Computer Science (Honours), Artificial Intelligence Specialization
GPA: 3.7/4.0
Related courses: Neural Network and Deep Learning, Design and Analysis of Algorithms, Linear Algebra

RESEARCH INTERESTS

- Evolutionary computation
- Reinforcement Learning
- Deep Learning
- Computational Neuroscience and Bio-Inspired AI
- GNNs and Geometric Deep Learning

RESEARCH EXPERIENCE

Web Application for Sequential Recommendation System September 2022 - March 2023
Supervisors: Dr. Luis Rueda

- Modeled a sequential dynamic movie recommendation system using Deep Reinforcement learning
- System allows multiple users and gives users new recommendations based on their selections.
- Created using Python, JavaScript, TensorFlow, Flask, ReactJS

Medical Document PHI Filter January 2023 - April 2023
Supervisors: Dr. Edward Komissarchi

- Conducted research on PDF processing and analyzed sensitive medical data using various techniques.
- Successfully implemented various techniques to extract and analyze important data from PDFs, leading to more efficient data processing.
- Evaluated BERT deidentification models on medical data, including the Stanford deidentification base model and models trained on the i2B2 dataset.

PUBLICATIONS

Towards Evolving Creative Algorithms: Musical Time Series Forecasting with Tangled Program Graphs June 2024
Ali Naqvi, Stephen Kelly *(Status: Accepted for Presentation)*

- 2024 Conference on Artifical Life (`https://2024.alife.org/`)

Evolving Many-Model Problem Solvers June 2024
Stephen Kelly, Ali Naqvi, Eddie Zhuang, Tanya Djavaherpour *(Status: Accepted as book chapter)*

- Genetic Programming Theory & Practice XXI (`http://gptp-workshop.com`)

Improving Efficiency of Indexed Memory for Tangled Program Graphs July 2024
Tanya Djavaherpour, Ali Naqvi, Stephen Kelly *(Status: Submitted to Conference)*

- 16th International Conference on Evol (`https://ecta.scitevents.org/`)

TEACHING EXPERIENCE

COMPSCI 2SD3: Concurrent Systems [McMaster University] Winter 2024
Role: Teaching Assistant
Responsibilities: Taught weekly labs for all sessions, and contributed to grading and feedback.

COMPSCI 3GC3: Computer Graphics [McMaster University] Fall 2023
Role: Teaching Assistant
Responsibilities: Taught weekly labs for all sessions, and contributed to grading and feedback.

Programming for Beginners [University of Windsor] Winter 2023
Role: Teaching Assistant
Responsibilities: Contributed to grading and feedback.

Operating Systems [University of Windsor] Fall 2022
Role: Teaching Assistant
Responsibilities: Held weekly office hours, and contributed to grading and feedback.

Key Concepts in Computer Science [University of Windsor] Summer 2022
Role: Teaching Assistant
Responsibilities: Held weekly office hours, and contributed to grading and feedback.

Social Media & Mobile Tech [University of Windsor] Winter 2022
Role: Teaching Assistant
Responsibilities: Held weekly office hours, and contributed to grading and feedback.

NOTABLE PROJECTS

. *Simulink-Style Data Preprocessing Pipeline for ML:* Project to streamline the ML data pre-processing pipeline for ML algortihms.

. *Implementation of Hierarchical Graph Pooling:* Re-implementation of the Hierarchical Graph Pooling with Structure Learning paper.

. *Analysis of the Google Landmark Competition 2021:* Designed a Shifted Window Transformer model to tackle the largest Google Landmark dataset.

. *Exploring Efficiency Amonst Supervised Models:* Research paper on supervised learning models and their accuracy on a chosen MNIST dataset.

. *Comparative Analysis of Convolutional Neural Network Architectures:* Research paper on convolutional neural networks and comparison to other models using an MNIST dataset.

. *Exploring optimization strategies with the prisoner's dilemma:* Research paper on exploring different strategies for the prisoner's dilemma game.

ACHIEVEMENTS

Summer 2023

Gold LEAD Medallion, awarded by University of Windsor *July 2023*

SKILLS

Working Knowledge	Python, C/C++, PyTorch, Numpy, Pandas, Tensorflow
Intermediate Knowledge	SKLearn, Java, JavaScript, SQL
Languages	English (Native), Urdu

HOBBIES

Reading	I read a variety of genres but usually stick to classic literature. Some notable authors I particularly like are Dostoevsky, Cervantes, and Tolstoy.
Art	In my spare time, I try my best to make art, using oil pastels or ink.
Music	I enjoy playing classical music such as Beethoven and Rachmaninoff on the violin and piano.