Tanya Djavaherpour

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Education	**McMaster University** Hamilton, Ontario, Canada

Education

McMaster University — Hamilton, Ontario, Canada
M.Sc., Computer Science — Sep. 2023 – Present
Courses:

Evolutionary Computation: A+	Linear Optimization: A
Machine Learning on Graphs: A	Development of Scientific Computing Software: A

Amirkabir University of Technology (Tehran Polytechnic) — Tehran, Iran
B.Sc., Computer Engineering, GPA: 3.75/4 (18.14/20) — Sep. 2018 – Jul. 2023

Farzanegan (2) High School — Tehran, Iran
Diploma, Mathematics and Physics Discipline — Sep. 2014 - Jun. 2018
National Organization for Development of Exceptional Talents (NODET), *GPA: 19.78/20*

Technical Skills

Programming Languages: Java, Python, C, MATLAB
Databases: MySQL, SQLServer
Libraries: PyTorch, Keras, NumPy, Pandas, Matplotlib, Pylint
Text-setting: LaTeX, MS Word
Engineering and Development Tools: IntelliJ, PyCharm, Git

Research Interests

Machine Learning, Artificial Intelligence
Genetic Programming, Reinforcement Learning

Research Experience

Research Assistant, McMaster University — Sep. 2023 – Present
Research on evaluating Tangled Program Graphs (TPG) as a memory mechanism for Deep Reinforcement Learning.
Under the supervision of Dr. Stephen Kelly.

Research Assistant, Amirkabir University of Technology — Sep. 2022 – Jul. 2023
Design and implementation of a software system for underwater image processing.
Final bachelor's thesis project under the supervision of Dr. Mohammad Rahmati.

Research Intern, IPM Institute for Research in Fundamental Sciences — Jul. 2021 – Oct. 2021
Research on AI-based financial market analysis approaches, focusing on testing available DL architectures and constructing a new hybrid model for each analytical model that aggregates ports of old models.
Under the supervision of Dr. Dara Rahmati & Dr. Saeid Gorgin.

Publications

Evolving Many-Model Agents with Vector and Matrix Operations in Tangled Program Graphs — 2024
Tanya Djavaherpour, Ali Naqvi, Eddie Zhuang, Stephen Kelly, *Genetic Programming Theory & Practice XXI.*

Improving Efficiency of Indexed Memory for Tangled Program Graphs — 2024
Tanya Djavaherpour, Ali Naqvi, Stephen Kelly, 16th *International Conference on Evolutionary Computation Theory and Applications (ECTA).*

Investigation of Sadness on Brain Mathematical Ability Using Musical and

	Semantical Excitation	2019

Semantical Excitation 2019
Ali Davoodi Moghadam, Ali Jamali, Tanya Djavaherpour, Behrad Taghibeyglou, 8th Conference of Basic and Clinical Neuroscience Congress, Razi Hall, Tehran, Iran.
Link to ResearchGate

Notable Projects

G-Mixup: An Approach for Graph Data Augmentation to Enhance Graph Classification Models' Performance Link to GitHub — Apr. 2024

Snail Jumper: An Evolutionary Game with Genetic Algorithm and Neural Network Link to GitHub — Jun 2022

Heart Disease Diagnosis-Fuzzy Sys: A Heart Disease Diagnosis System Using Fuzzy Expert System Link to GitHub — Jun 2022

VFH-PathPlanning: Controlling and Moving a Mobile Robot from Starting Point to the Specific Goal in ROS Link to GitHub — Jun 2022

CIFAR-Classification: Classifying CIFAR-10 Data by Creating a Fully Connected ANN and CNN with TensorFlow Link to GitHub — May 2022

Vaccination System: An Implementation of a Vaccination System Database, Using SQL Link to GitHub — Jan. 2022

Plants vs. Zombies Game: A Single and Multiplayer Game Written in Java Using Swing and Graphics 2D Link to GitHub — Feb. 2021

Teaching Experiences

Teaching Assistant, McMaster University

Data Structures and Algorithms for Mechatronics	Winter 2024
Computer Architecture	Fall 2023

Teaching Assistant, Amirkabir University of Technology

Principles of Artificial Intelligence	Fall 2022
Advanced Programming	Spring 2022
Algorithm Design	Spring 2022
Microprocessor and Assembly Language	Spring 2022
Fundamentals of Computer Programming	Fall 2021
Fundamentals of Computer Programming	Fall 2020

Honors and Awards

A^+ **Grade** in Deep Learning Implementation Workshop of AUT	2019
3rd **Place** in Deep Learning Implementation Workshop Project	2019
Ranked Top 0.7 Among All Students in the National University Entrance Exam	2018
1st **Place** in Junior Soccer B Light Weight Super Team, RoboCup Iran Open	2015

Link to Certificate

Workshops

Deep Neural Networks Implementation Using PyTorch Link to Certificate — 2019
Amirkabir University of Technology

Digital Fabrication and 3D Printing Link to Certificate — 2019
Amirkabir University of Technology

Introduction to MATLAB Programming Link to Certificate — 2019
University of Tehran

Soft Skills

Agile Methodologies: Scrum
Good at Communication and Team Work