

Tanya Djavaherpour

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| Education | McMaster University M.Sc., Computer Science <i>Courses:</i> Evolutionary Computation: A+ Machine Learning on Graphs: A | Hamilton, Ontario, Canada Sep. 2023 – Apr. 2025 (Expected) Linear Optimization: A Development of Scientific Computing Software: A |
| | Amirkabir University of Technology (Tehran Polytechnic) B.Sc., Computer Engineering, GPA: 3.75/4 (18.14/20) <i>Highlighted Courses:</i> Algorithm Design: 19.25/20 Engineering Statistics: 20/20 | Tehran, Iran Sep. 2018 – Jul. 2023 Data Structures and Algorithms: 19/20 Artificial Intelligence: 20/20 |
| Research Experience | Research Assistant, McMaster University Research on evaluating Tangled Program Graphs (TPG) as a memory mechanism for Deep RL. Under the supervision of Dr. Stephen Kelly. Research Assistant, Amirkabir University of Technology 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 Researching AI-based financial market analysis, testing DL architectures, and developing hybrid models by integrating components of existing frameworks. Under the supervision of Dr. Dara Rahmati & Dr. Saeid Gorgin. | Sep. 2023 – Present Sep. 2022 – Jul. 2023 Jul. 2021 – Oct. 2021 |
| Publications | Evolving Many-Model Agents with Vector and Matrix Operations in Tangled Program Graphs Tanya Djavaherpour, Ali Naqvi, Eddie Zhuang, Stephen Kelly, <i>Genetic Programming Theory & Practice XXI</i> . Tangled Program Graphs with Indexed Memory in Control Tasks with Short Time Dependencies Tanya Djavaherpour, Ali Naqvi, Stephen Kelly, 16 th International Conference on Evolutionary Computation Theory and Applications (ECTA). Link to the Paper Investigation of Sadness on Brain Mathematical Ability Using Musical and Semantical Excitation Ali Davoodi Moghadam, Ali Jamali, Tanya Djavaherpour, Behrad Taghibeyglou, 8 th Conference of Basic and Clinical Neuroscience Congress, Razi Hall, Tehran, Iran. Link to the Paper | 2024 2024 2019 |
| Presentations | Enhancing Collaboration in Tangled Program Graphs with Shared Memory for MuJoCo Continuous Control Tasks Lightning Talk, 5 Minute Thesis (5MT), Women in Science and Engineering (WISE), University of Toronto, Toronto, Canada. Tangled Program Graphs with Indexed Memory in Control Tasks with Short Time Dependencies Seminar Presentation, Vaader Seminars, IETR, University of Rennes, Rennes, France. Tangled Program Graphs with Indexed Memory in Control Tasks with Short Time Dependencies | 2025 2025 2024 |

Conference Presentation, 16th International Conference on Evolutionary Computation Theory and Applications (ECTA), Porto, Portugal.

Tangled Program Graphs with Indexed Memory in Control Tasks with Short Time Dependencies 2024

Poster Presentation, 7th Computing and Software Poster and Demo Competition, McMaster University, Hamilton, Canada.

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| 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 |
| | VFH-PathPlanning: Controlling and Moving a Mobile Robot from Starting Point to the Specific Goal in ROS Link to GitHub | Jun 2022 |
| | Plants vs. Zombies Game: A Single and Multiplayer Game Written in Java Using Swing and Graphics 2D Link to GitHub | Feb. 2021 |
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| Teaching Experiences | Teaching Assistant, McMaster University | |
| | Data Structures and Algorithms for Mechatronics (MECHTRON 2MD3) | Winter 2024, 2025 |
| | Software Development (SFWRENG 3K04) | Fall 2024 |
| | Computer Architecture (CS 2GA3) | Fall 2023, 2024 |
| | Teaching Assistant, Amirkabir University of Technology | |
| | Principles of Artificial Intelligence | Fall 2022 |
| | Advanced Programming | Spring 2022 |
| | Algorithm Design | Spring 2022 |
| Technical Skills | Microprocessor and Assembly Language | Spring 2022 |
| | Fundamentals of Computer Programming | Fall 2020, 2021 |
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| | Programming Languages: Python, C++, Java, MATLAB, SQL | |
| | Databases: MySQL, SQLServer | |
| | Libraries: PyTorch, Keras, NumPy, Pandas, Matplotlib, Pylint | |
| | Version Control: Git, GitHub/Gitlab | |
| Honors and Awards | Development Methodologies: Agile, Test-Driven Development | |
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| | EGS Travel and Professional Development Award , McMaster University Engineering Graduate Society | 2024 |
| | 3rd Place Poster in the 7 th Computing and Software Poster and Demo Competition, McMaster University | 2024 |
| | Received a 2-Year Full Scholarship (Graduate Scholarship and Research Scholarship) Valued at 34K CAD, McMaster University | 2023 |
| | 3rd Place in Deep Learning Implementation Workshop Project at Amirkabir University | 2019 |
| | 1st Place in Junior Soccer B Light Weight Super Team, RoboCup Iran Open Link to Certificate | 2015 |
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| 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 | |
| Volunteer | International Grad Navigator, McMaster University | Jul. 2024 – Dec. 2024 |