

MOHAMMAD PARSA TOOPCHINEZHAD

✉ ptoopchinezhad@gmail.com | 🌐 Website | 🔗 LinkedIn | 🐙 GitHub | 🎓 Google Scholar

Research Interests

- Machine Learning
- Computer Networks
- Digital Twins
- Cloud/Edge Computing
- Reinforcement Learning
- Internet of Things
- Multimedia Systems
- Distributed Computing

Education

Concordia University

May 2025 – Present

Master of Computer Science

Montreal, Canada

- **MSc Thesis:** “Cross-layer Network Digital Twins for Prediction and Optimization”
- **Supervisor:** Dr. Abdelhak Bentaleb
- **Relevant Coursework:**
 - * Machine Learning (COMP 6321)
 - * Federated Learning (COMP 691)

Razi University

Sep. 2021 – Jan. 2025

Bachelor of Science in Computer Engineering

Kermanshah, Iran

- **GPA:** 3.95/4.0 (19.00/20), **ranked 2nd** out of 50 students
- **BSc Thesis:** “Deep Reinforcement Learning-Based Resource Allocation in Vehicular Fog Computing”
- **Thesis Supervisor:** Dr. Mahmood Ahmadi
- **Relevant Coursework:**
 - * Algorithm Design (20/20)
 - * Computer Networks (20/20)
 - * Cloud Computing (20/20)
 - * Multi-Core Programming (20/20)
 - * Artificial Intelligence (17/20)
 - * Internet of Things (20/20)

Publications

S=In Submission, P=Published

- [S.1] **Energy-Efficient and SLA-Aware Virtual Network Function Placement Using Predictive Auto-Scaling**
Rojia Nikbazm, Mahmood Ahmadi, Mohammad Parsa Toopchinezhad
Computing Journal (Springer)
- [P.3] **Machine Learning Approaches for Active Queue Management: A Survey, Taxonomy, and Future Directions**
Mohammad Parsa Toopchinezhad, Mahmood Ahmadi
Computer Networks ([📄 Paper](#))
- [P.2] **Deep Reinforcement Learning for Delay-Optimized Task Offloading in Vehicular Fog Computing**
Mohammad Parsa Toopchinezhad, Mahmood Ahmadi
29th International Computer Society of Iran Computer Conference ([📄 Paper](#) | [🔗 Code](#))
- [P.1] **Application of Deep Reinforcement Learning in Semi-Active Control of Frame Structures Equipped with Multiple Damper Devices**
Mohammad Parsa Toopchinezhad, Mostafa Toopchinezhad, Hamid Toopchinezhad
9th International Conference on Seismology and Earthquake Engineering ([📄 Paper](#) | [📄 Poster](#))

Experience

Teaching Assistant

Jul. 2025 – Present

Concordia University

Montreal, Canada

- **Parallel Programming (COMP 6281/428)** – Dr. Dhrubajyoti Goswami
- **Algorithm Design Techniques (COMP 6651)** – Dr. Yaser Esmaili Salehani
- **Data Communication and Computer Networks (COMP 445)** – Dr. Abdelhak Bentaleb
- **Mathematics for Computer Science (COMP 232)** – Dr. Gosta Grahne
- **Databases (COMP 353)** – Dr. Khaled Jababo

Research & Development Intern

Jun. 2024 – Sep. 2024

Nirooye Gharb

Kermanshah, Iran

- Collaborated with a multidisciplinary engineering team to develop an intelligent transmission tower monitoring system featuring a multi-stage human detection system implemented on Raspberry Pi 4.
- Achieved significant performance optimization with an 80% reduction in CPU engagement through innovative integration of background models, movement detection, and object detection algorithms.

Founder & Chairman

Sep. 2023 – Aug. 2024

Razi University AI Student Association [[Website](#)]

Kermanshah, Iran

- Led a multidisciplinary 7-member team as elected chairman, overseeing educational and project-based activities.
- Developed ML and PyTorch courses targeting Persian-speaking learners, while collaborating with the Statistics department on various data analysis projects (see *Projects*).

Teaching Assistant

Sep. 2022 – Jan. 2025

Razi University

Kermanshah, Iran

- **Computer Networks** – Dr. Mahmood Ahmadi
- **Algorithm Design** – Dr. F. Fathinezhad and Dr. S. Shafiee
- **Technical English** – Dr. Abdollah Chalechale

Languages

English: Bilingual Proficiency (**IELTS Academic: 8.5** – Listening: 9, Reading: 9, Writing: 7, Speaking: 8)
Persian: Native Proficiency

Skills Summary

- **Machine Learning:** PyTorch, TensorFlow, Scikit-learn, OpenCV, NumPy, Pandas, Matplotlib
- **Simulation & RL:** Gym/Gymnasium, StableBaselines, RLlib, SimPy, Ns-3, CloudSim, Mininet
- **Miscellaneous:** CUDA, MPI, C/C++, Java, Git, Linux, Raspberry Pi, Arduino, L^AT_EX
- **Web Development:** Django, Flask, ASP.NET, HTML, CSS, JavaScript, SQL
- **Soft Skills:** Teamwork, Leadership, Presentation, Teaching, Communication

Projects

Analysis of Razi University Student Data

August 2024

- A university-sponsored project aimed at extracting, visualizing, and analyzing the data of over 1000 students.
- Trained a gradient-boosting model capable of predicting a student's cumulative GPA based on their performance during the first two semesters, with an average error of ~2.5%.

Creator of “Machine Learning: A Theoretical and Practical Guide” [[Code](#) | [Video](#)]

April 2024

- A two-hour series that provides an overview of ML concepts and libraries, then dives into the theory and code of prominent ML algorithms (KNN, Linear Regression, Decision Tree, Random Forest, SVM). 4,000+ views.

Creator of “PyTorch in 1 Hour” Course [[Code](#) | [Video](#)]

May 2024

- A bite-sized video that covers the fundamentals of using PyTorch for creating, training, and testing deep neural networks. Additionally, advanced topics, such as transfer learning, are also explored.

Iran Traveling Salesman Problem [[Code](#)]

January 2022

- As part of my Discrete Mathematics class, I produced the first solution for the Traveling Salesman Problem concerning Iranian cities, calculating the optimal route that connects all 1176 major cities in the country.

Academic Service

Peer Reviewer

- IEEE/ACM Transactions on Computer Networking (×2)

Awards & Funding

- **Faculty Research Support & Grant** – Concordia University 2025
- **Out of Province Award** – Concordia University 2025
- **Dean's List, two consecutive years** – Razi University 2023-2024
- **3rd place, National Electronic Publishing Event** – 37th Cultural & Artistic Festival of Selected Iranian Students 2019

Certificates

- **Reinforcement Learning Specialization** – Coursera, Alberta University [🔗](#) 2024
- **Machine Learning Specialization** – Coursera, Stanford University [🔗](#) 2023
- **Neural Networks and Deep Learning** – Coursera, DeepLearning.AI [🔗](#) 2023
- **Convolutional Neural Networks** – Coursera, DeepLearning.AI [🔗](#) 2023
- **AI Summer School** – Iranian Research Institute for Information Science & Technology [🔗](#) 2023

References

Available upon request