Mohammad Parsa Toopchinezhad

✉ ptoopchinezhad@gmail.com | 🌐 Website | in LinkedIn | ⌂ GitHub | 🎓 Google Scholar

Research Interests

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

Education

Concordia University   May 2025 – Present
Master of Computer Science   Montreal, Canada
- **Supervisor:** Dr. Abdelhak Bentaleb
- **MSc Thesis:** (to be decided)

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)
  * Multi-Core Programming (20/20)
  * Computer Networks (20/20)
  * Artificial Intelligence (17/20)
  * Cloud Computing (20/20)
  * 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
Journal of Network and Systems Management

[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

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*** TA, supervised by Dr. M. Ahmadi (one semester)
- ***Algorithm Design*** TA, supervised by Dr. F. Fathinezhad and Dr. S. Shafiee (two semesters)
- ***Technical English*** TA, supervised by Dr. A. Chalechale (two semesters)

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, Verilog, C/C++, Java, Git, Linux, Raspberry Pi, Arduino, LaTeX
- **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 $\sim$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). Currently at over 500 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 ($\times$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