

Mohammadreza Tayaranian

Curriculum Vitae

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Education

- 2021–Now **Ph.D. in Electrical Engineering**, *McGill University*.
Supervisor: Prof. Warren Gross
Research assistant at McGill Edge Intelligence Lab
- 2020–2021 **M.Sc. in Electrical Engineering**, *McGill University*, GPA – 3.75/4.0.
Supervisor: Prof. Warren Gross
Program converted to PhD with the fast-track application.
- 2015–2020 **B.Sc. in Computer Engineering**, *University of Tehran*, GPA – 3.42/4.0.
Final project: Service Migration in Mobile Edge Computing

Research Interests

Model Compression - Energy efficient Machine Learning models
Hardware Aware Training

Experience

- Fall 2023 **Teaching Assistant**, MCGILL UNIVERSITY.
Course: “ECSE444:Microprocessors”, Professor Brett Meyer
- 2021 - 2023 **Research Intern**, HUAWEI NOAH’S ARK LAB, MONTREAL.
Working as a part-time research intern in Montreal office of Noah's Ark Lab.
- 2018 - 2020 **Research Assistant**, INSTITUTE FOR RESEARCH IN FUNDAMENTAL SCIENCES.
Working in the High Performance Computing Lab with a team of PhD and postdoc students.
Providing simulation for research papers on hardware implementation of neural networks.
- 2018 - 2019 **Head Teaching Assistant**, UNIVERSITY OF TEHRAN.
In the “Compiler Design and Implementation” course for two consecutive semesters with an average of 80 enrolled students and 7 teaching assistants.
- 2015–2020 **Teaching Assistant**, UNIVERSITY OF TEHRAN.
Courses: “Computer Networks”, “Artificial Intelligence” and “Real-time Embedded Systems”

Volunteer

- July 2017 **Guide for contestant team**, 29th *International Olympiad in Informatics*, Tehran.
Volunteered to act as a local guide for the Taiwan team. Being part of an international event with people from different cultures was a new experience for me.

Student Committee Member.

Helping in the organization of two international conferences:

- The 2nd CSI International Symposium on Real-Time and Embedded Systems and Technologies (RTEST 2018)
- The 8th International Conference on Fundamentals of Software Engineering (FSEN 2019)

Programming Skills

- Advanced PYTORCH framework for Machine Learning, Parallel Programming with CUDA
Intermediate Android Development with JAVA
Basic Backend development with NODEJS and DJANGO

Publications

- **M Tayaranian**, A Ghaffari, MS Tahaei, M Rezagholizadeh, M Asgharian, V Partovi Nia "Towards Fine-tuning Pre-trained Language Models with Integer Forward and Backward Propagation", **Findings of the Association for Computational Linguistics: EACL**, 2023
- A Ghaffari, MS Tahaei, **M Tayaranian**, M Asgharian, V Partovi Nia "Is Integer Arithmetic Enough for Deep Learning Training?", **Advances in Neural Information Processing Systems**, 2022
- D Vucetic, **M Tayaranian**, M Ziaeefard, J Clark, B Meyer, W Gross "Efficient Fine-Tuning of Compressed Language Models with Learners", **ICML HAET Workshop**, 2021
- **M Tayaranian**, D Vucetic, M Ziaeefard, J Clark, B Meyer, W Gross "Efficient Fine-Tuning of BERT Models on the Edge", **IEEE International Symposium on Circuits and Systems (ISCAS)**, 2022
- K Givaki, B Salami, R Hojabr, **SM Tayaranian**, A Khonsari, D Rahmati, S Gorgin, A Cristal, O S Unsal "On the Resilience of Deep Learning for Reduced-voltage FPGAs", **Parallel Distributed and Network-Based Processing (PDP)**, 2020
- R Hojabr, K Givaki, **SM. Reza Tayaranian**, P Esfahanian, A Khonsari, D Rahmati, M H Najafi "SkippyNN: An Embedded Stochastic-Computing Accelerator for Convolutional Neural Networks", **Design Automation Conference (DAC)**, 2019

Selected Projects

- Implementing a multi layer perceptron on NIOS II and hardware acceleration using on-chip FPGA
- An android application for teaching driving rules to learners
- A GPS-based notifier for android

Languages

- Persian **Mother Tongue**
English **Fluent**
French **Basic**

TOEFL ibt 115 / 120

Currently Learning