AmirHosein Ebrahimi

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EDUCATION

B.Sc. of Computer Engineering **2017 – 2022**
Shahid Beheshti University *Tehran, Iran*

- **Supervisor:** Dr. Dara Rahmati
- **Thesis:** Acceleration of biologically inspired neural network. Grade (A+)
- **GPA**: 3.04/4 (15.53/20) - (Last two years of post-secondary, 65 credits): 3.63/4 (17.25/20)

MASc. Biomedical Engineering **2024**
University of Ottawa *Ottawa, Canada*

- **Supervisor:** Dr. Arvind Mer
- **Thesis:** Acute Lung Injury Assessment Using Vision Transformers
- **CGPA**: 4/4

RESEARCH INTERESTS

- Machine Learning, Deep Learning
- Bioinformatics
- Computational biology
- Computer Vision

PUBLICATIONS

- **A. Ebrahimi**, M.R. Zarei, E. Kuhar, A. Mer - 2025 - *From Data Annotation to AI Prediction: Streamlining Histopathology Analysis in Acute Respiratory Distress Syndrome* - 38th Canadian Conference on Artificial Intelligence (Canadian AI 2025), CAIAC - link
- **A. Ebrahimi**, H.V. Sefat, J.A. Rad - 2025 - **Basics of Machine Learning** - In: *Dimensionality Reduction in Machine Learning*, Elsevier, pp. 3–38 - link
- G. Wu, A. Zaker, **A.H Ebrahimi**, S. Tripathi, A. Mer - 2024 - Bioinformatics Advances - Text-Mining Based Feature Selection for Anticancer Drug Response Prediction - link
- **A.H Ebrahimi**, H. Vafaei, M. Asghari, D. Rahmati - 2023 - Neurocomputing - *HA-BSN: Hardware acceleration of bio-SFA and bio-NICA, biological neural networks, on FPGA with HLS* - link
- S.Alipour, **A.H Ebrahimi** - 2024 - 3rd ACM International Conference on Information and Knowledge Managemen - *A new approach for minimum dominating set problem* - link
- **A.H Ebrahimi**, H. Vafaei, D. Rahmati - 2022 - National Informatics Conference of Iran (NIC) - *Estimating stochastic model's parameters using residual neural networks* - p128

WORK & RESEARCH EXPERIENCE

Mer Lab | Research Assistant **2023 – present**

- I contributed to groundbreaking research at Mer Lab, a leading computational biology and machine learning group affiliated with the University of Ottawa.

IPM | Research Assistant **2019 – 2024**

- As an undergraduate, I joined this research institution willingly to expand my expertise of machine learning and deep learning. Later, I completed my internship there and remained as an AI researcher, collaborating with other AI researchers on various projects.

HUMA | Back-end developer **2023 – 2024**

- I worked as a Back-End Developer and Solution Specialist at Huma, contributing to innovative healthcare applications for remote patient monitoring, improving outcomes and accelerating research.

CMP Lab | Developer **2021 – 2023**

- I worked as a programmer at CMP Lab, Shahid Beheshti University - Institute for Cognitive and Brain Sciences (ICBS), developing psychological experiments.

COURSES & CERTIFICATES

Coursera

- Structuring Machine Learning Projects
- Hyper-parameter Tuning, Regularization and Optimization
- Neural Networks and Deep Learning
- Basic Generative Adversarial Networks - Build Better Generative Adversarial Networks

IPM _ CMP Lab

- Fifth IPM Advanced School on Computing and Artificial Intelligence (ASOC 2021)
- 2nd Six-day School of mathematical and computational psychology (2022)

TEACHING EXPERIENCE

Teaching Assistant - SBU

- *Computer Architecture* (Dr. Dara Rahmati) Fall 2019 - 2020
- *Microprocessors and Assembly* (Dr. Seyed-Hosein Attarzadeh-Niaki) Fall 2020
- *Microprocessors and Assembly* (Dr. Dara Rahmati) Spring 2021

Course Instructor at Onacademy 2022 - Now

- Python and R
- Basic Machine Learning
- Advanced Machine Learning
- Data Analytics for ML
- Neural Networks
- Computer Vision

TECHNICAL SKILLS

Programming Languages

- **Python**: Expertise in Python-based machine learning and data science libraries, including Keras, TensorFlow, PyTorch, Scikit-learn, SciPy, PyG (PyTorch Geometric), and FastAI.
- **C/C++**: Proficient in performance-oriented programming with libraries like Armadillo and OpenMP for high-performance computing tasks.
- Additional Experience: Java, Golang, MATLAB, and R.

Frameworks, Tools, and Libraries

- Machine Learning and Deep Learning: Hugging Face Transformers, PyTorch, TensorFlow, Keras, FastAI, Scikit-learn, and cmdstanpy.
- Data Processing and Automation: Pandas, NumPy, Selenium, and PsychoPy.
- Development and Deployment: Docker, Linux (shell scripting, server management).
- Large Language Models (LLMs): Experience with fine-tuning and deploying pre-trained LLMs using frameworks like Hugging Face.

Hardware and Embedded Systems

- FPGA: Xilinx ZedBoard, DE0-Nano-SoC, Z-turn.
- Microcontrollers: Arduino, Raspberry Pi 3/4.

REFERENCES

Dr. Arvind Mer

- Assistant Professor - Department of Biochemistry, Microbiology & Immunology Faculty of Medicine - Email: amer@uottawa.ca

Dr. Dara Rahmati

- Assistant Professor - Faculty of Computer Engineering and Science Shahid Beheshti University - Institute for Research in Fundamental Science IPM - Email: d_rahmati@sbu.ac.ir

Dr. Kamyar Givaki

- Research Associate, HPC Center, Institute for Research in Fundamental Science IPM - Email: givakik@ipm.ir