Salar Latifi

4861 BBB, 2260 Hayward Street – Ann Arbor, MI 48109

+1 (734) 881-0463 • salar@umich.edu • web.eecs.umich.edu/~salar

Education

PhD Candidate in Computer Science Engineering ***2016–Present***

Adviser: Prof. Scott Mahlke

University of Michigan, Ann Arbor

M.Sc. in Computer Science Engineering (GPA: 3.82) ***2016–2017***

University of Michigan, Ann Arbor

B.Sc. in Electrical Engineering ***2011–2016***

Major: Digital Systems – Minor: Computer Science

Sharif University of Technology, Tehran, Iran

Research Experience

Quality Assurance for Convolutional Neural Netwoks ***Fall 2016–Present***

The focus of this research is reliability of CNNs, designing systems or proposing methodologies in order to decide on the reliability and correctness of the final network prediction with the goal of eliminating wrong predictions and marking them as unreliable results.
Under the supervision of Prof. Scott Mahlke

Assessment of Boosting Algorithms on Deep Neural Networks ***Fall 2016***

We applied boosting algorithms to regression and classification problems in DNNs and investigated their effectiveness in the matter of accuracy and energy consumption.
Under the supervision of Prof. Scott Mahlke

GPGPU Accelerated Deep CNN Framework for Mobile Platforms ***Fall 2014–2016***

We developed an open-source Deep CNN framework for smart-phones with Android OS, and accelerated this framework by exploiting smart-phone GPGPU via Renderscript framework.
Under the supervision of Prof. Matin Hashemi
https://github.com/ENCP/CNNdroid

Publications

"Cnndroid: Gpu-accelerated execution of trained deep convolutional neural networks on Android." Proceedings of the 2016 ACM on Multimedia Conference. ACM, 2016.
Salar Latifi, Hossein Golestani, Matin Hashemi, Soheil Ghiasi

"PolygraphMR: Enhancing the Reliability and Dependability of CNNs." The 50th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2020)
Salar Latifi, Babak Zamirai, Scott Mahlke

"SIEVE: Speculative Inference on the Edge with Versatile Exportation." The 57th IEEE Design Automation Conference (DAC 2020)
Babak Zamirai, Salar Latifi, Pedram Zamirai, Scott Mahlke

Internships

Apple Inc. - Optimizing Sequence to Sequence Applications (Paid Full-time) ***Summer 2018***

Apple Inc. - Neural Architecture Search (Paid Full-time) ***Summer 2019***

Work and Teaching Experiences

Graduate Student Instructor, *EECS-370* Introduction to Computer Organization, University of Michigan — *Fall 2020*

Graduate Student Instructor, *EECS-370* Introduction to Computer Organization, University of Michigan — *Winter 2020*

Graduate Student Research Assistant, *CCCP* research group, University of Michigan — *Fall 2016 – Present*

Teaching Assistant, *Logic System Design*, Prof. Hoda Mohammadzade(3 semesters) — *Fall 2014 – Fall 2015*

Teaching Assistant, *Microprocessor System Design*, Prof. Esmaeil Sanaei(2 semesters) — *Fall 2014 – Spring 2015*

Lab Assistant, *FPGA/ASIC*, Prof. Mahdi Shabany — *Spring 2015*

Related Courses

University of Michigan: Computer Architecture (EECS 470), Advanced Compilers (EECS 583), Parallel Computer Architecture (EECS 570), Machine Learning (EECS 545), Microarchitecture (EECS 573)

Sharif University of Technology: Parallel Programming and Architecture, Statistical Machine Learning, Computer Interfacing, Microprocessor System Design, FPGA/ASIC, Signals and Systems, Microprocessor System Lab, Computer and Microprocessor Architecture, Data Structure, Data Networks, Theory of Automata and Language, Operating Systems, Advanced Java Programming, Advanced C++ Programming

Selected Projects

- Design and Implementation of a MIPS R10K-based out-of-order CPU using SystemVerilog, *Computer Architecture* †
- Fast architectural simulation of web-based programs using their large scale behavior, *Advanced Compilers* †
- Hand gesture detection system for recognizing numbers, using OpenCV for pre-processing in PC and FPGA for detection algorithm, *Microprocessor System Design Lab* ‡
- Simple Bowling-like game using OpenGL and C++, *Computer Interfacing* ‡
- Design of frame detection for synchronization in OFDM symbols on FPGA and ASIC, *FPGA/ASIC* ‡
- Topographer robot with the capability of recording traversed path and sending a copy of it to PC, *Microprocessor Systems Design* ‡
- Classification of face action units using Lasso Regression in DISFA dataset, *Statistical Machine Learning* ‡
- Adding a new system call to the Linux kernel, *Operating Systems* ‡
- Evaluation of ARM Cortex-A8 Microcontrollers for Implementation of Micro-servers, *Internship Project* ‡

† *University of Michigan* ‡ *Sharif University of Technology*

Skills

Deep Learning: Caffe, PyTorch, TensorFlow, scikit-learn

Programming Languages: Python, C/C++, Java/Android, MATLAB, R, Assembly(X86)

Parallel Programming: CUDA, Pthread, Renderscript, OpenCL*

FPGA/ASIC: SystemVerilog, Altera Quartus, Xilinx ISE, ModelSim

Simulator and CADs: Simulink, Altium, Proteus, PSpice

Web: HTML

* *Basic Knowledge*

Honors and Awards

Awarded full support for PhD studies at University of Michigan — *2016*

Ranked 51th among almost 250,000 participants in the National Entrance Exam of the Public Universities of Iran in the field of Physics and Mathematics — *2011*

Membership of Iranian National Elites Foundation — *2011 – 2016*