NEGAR NEDA

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EDUCATION

University of Tehran (UT), Tehran, Iran, Sep. 2018 - present
Master of Science, Computer Architecture
Thesis: FPGA-based Multi-precision Accelerator for Deep Neural Networks
Cumulative GPA: **17.3/20 (3.53/4)** [1]

Amirkabir University of Technology (AUT), Tehran, Iran Sep. 2014 - Sep. 2018
Bachelor of Science, Computer Engineering, Computer Architecture Systems
Thesis: Implementation of a Tracking System Using LoRaWAN Protocol
GPA (last **3** semesters):**17.81/20 (3.74/4)**
Cumulative GPA: **17.2/20 (3.52/4)**[2]

National Organization for Development of Exceptional Talents (NODET), Birjand, Iran
Diploma, Mathematics and Physics Sep. 2010 - Jun 2014
Cumulative GPA: **19.68/20**

RESEARCH INTERESTS

- Hardware Accelerators
- FPGA
- Reconfigurable Computing
- Deep Neural Networks
- Embedded Systems
- Approximate Computing

RESEARCH EXPERIENCES

• **Research Assistant in Network on Chip Laboratory**, University of Tehran 2018 - present
Supervised by Dr. Mehdi Modarressi

In this laboratory, Im working on implementation of an FPGA based multi-presission accelerator for deep neural networks. This architecture is able to change the working bit-width dynamically according to the minimum bit-width required to preserve the original accuracy. The multipliers and bit-width adaption mechanism is optimized for the LUT-based structure of FPGAs.

• **Researcher in Digital System Design Lab**, Amirkabir University of Technology 2017 - 2018
Supervised by Dr.Mahmoud Momtazpour and Dr.Morteza Sahebzamani

In this laboratory we were working on Amirkabir University of Technology IoT Gateway Project.

TEACHING EXPERIENCES

- **Teaching Assistant**, Computer Aided Digital, Under Supervision of Dr. Mehdi Modarressi 2019
- **Lab Instructor**, Logic Circuit Laboratory Course 2018
- **Teaching Assistant**, Computer Networks, Under Supervision of Dr. Siavash Khorsandi 2017
- **Teaching Assistant**, Digital Design Automation, Under Supervision of Dr. Morteza - Sahebzamani 2017
- **Teaching Assistant**, Electrical Circuit1, Under Supervision of Dr. Siavash Khorsandi 2016
- **Teaching Assistant**, Logic Circuits, Under Supervision of Dr. Mehdi Sedighi 2016

[1] Selected Courses GPA: 18.23/20(4/4): Neural Networks 17.7, Computer Arithmetics 19.06, Chip Multiprocessor 19, Advanced Computer Architecture 17.17, Fault Tolerant Systems 18.7, Interconnection Networks 19.3

[2] Computer Architecture related courses' GPA: 18.61/20(4/4): Logic Circuits 18.4, Computer Architecture 17.54, Electronic Circuits 19.54, Computer Aided Digital System Design 18, Digital Electronics 17.2, Operating System Design 19.2, VLSI Systems Design 18.8, Engineering Mathematics 19.5, Embedded & Real-Time Systems 19, Data Communications 19

PRACTICAL EXPERIENCES

- Completed **"Convolutional Neural Networks"** Online Course by deeplearning.ai on coursera.org 2020
- Completed **"Neural Networks and Deep Learning"** Online Course by deeplearning.ai on coursera.org 2019
- Completed **"Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization"** Online Course by deeplearning.ai on coursera.org 2019
- Attended **Third IPM[3] Advanced School on Computing**, Computer Architecture 2019
- Attended **8th IPM-HPC Workshop** on Multi-core Systems and Parallel Platforms 2019
- Attended **Introduction to FPGA Workshop**, Co-design and hardware implementation, held in AUT 2016

NOTABLE COURCE PROJECTS

- **Utilize OpenMp & CUDA to speed up CNN inference**, (MultiCore Embedded Systems) 2020
- **Forecast the number of taxi requests by RNN**, (Deep Neural Networks) 2019
- **Image Template Matching with CUDA**, Implemented the Template Matching algorithm in CUDA & OpenMp, on a dataset of coin/face images. (Multi-Core Programming Course) 2018
- **Temperature controller**, using Wi-Fi development board (WEMOS D1) and LM35 and Android-Smartphone, (Computer Interface Design Course) 2018
- **Implementing various projects for FRDM-KL25Z board**, (Embedded Systems) 2018
- **Implementing a home environment controller**, using VHDL & Co-Design (Digital Design Automation) 2017
- **Implementing SRAM**, using HSpice (Digital Electronics) 2016
- **Implementing an Engineering Calculator**, using CORDIC IP Core 2016
- **Implementing a Basic Computer, Cache and RAM**, by VHDL (Computer Architecture) 2016
- **Implementing Robo Kill game**, using JAVA (Advanced Programming) 2015

TECHNICAL SKILLS

Programming: VHDL, Verilog, Co-Design, Python(Keras, Tensorflow, PyTorch), CUDA, OpenMP, C/C++, Java, Assembly

Frameworks & Scientific Tools: Visual Studio, Qt, MATLAB, Arduino IDE

Hardware CAD Tools: Vivado Design Suite, Xilinx ISE Design Suite, PSPICE, HSPICE, Modelsim, Proteus, Keil

Operating Systems: Microsoft Windows, Linux

Typesetting Tools: LaTeX, Microsoft office (Word, Powerpoint, Excel, Visio)

Languages: Persian (Native), English (Fluent)

HONOR & AWARDS

Ranked Top 3 in term of GPA, among Computer Architecture Students in AUT 2019

Eligible to study in two fields simultaneously because of Top GPA 2015

Ranked top 0.6% out of 222,500, Nationwide University Entrance Exam, Mathematics 2014

[3] Institute for Research in Fundamental Sciences