

NEGAR NEDA

School of Electrical & Computer Engineering, University of Tehran, 16th Azar St, Enghelab Sq., Tehran, Iran

☎(+98)9155353543 ✉ne.neda74@gmail.com 🔗negarnd.github.io 📄[negarnd](#)

EDUCATION

- **University of Tehran (UT), Tehran, Iran** Sep. 2018 - present
M.Sc. in Computer Architecture
Cumulative GPA: **17.26/20 (3.63/4)**¹
Thesis: FPGA-based Multi-precision Accelerator for Deep Neural Networks
- **Amirkabir University of Technology (AUT), Tehran, Iran** Sep. 2014 - Sep. 2018
B.Sc. in Computer Engineering, Computer Architecture Systems
GPA (last two years): **17.91/20 (3.79/4)**
Cumulative GPA: **17.2/20 (3.62/4)**²
Thesis: Implementation of a Tracking System Using LoRaWAN Protocol
- **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
- Reconfigurable Computing
- Approximate Computing
- FPGA
- Deep Neural Networks
- Data/Computation Reuse

RESEARCH EXPERIENCES

- **Research Assistant in Network on Chip Laboratory**, University of Tehran 2018 - present
Supervised by [Dr. Mehdi Modarressi](#)
In this laboratory, I am working on the implementation of an FPGA based multi-precision 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 mechanisms are optimized for the LUT-based structure of FPGAs.
Also, I have submitted a paper based on my thesis on the **Date 2021 Conference**.
- **Researcher in IoT Lab**, Amirkabir University of Technology 2018
Supervised by [Dr. Mehdi Rasti](#)
In this laboratory, I worked on designing a portable Tracking System using ADXL335, NEO-6m and LoRaWAN protocol as my B.Sc thesis.
- **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 worked on the Amirkabir University of Technology IoT Gateway Project.

TEACHING EXPERIENCES

- **Computer-Aided Digital**, T.A. (Dr. Mehdi Modarressi) 2019
- **Logic Circuit Laboratory**, Lab Instructor 2018
- **Computer Networks**, T.A. (Dr. Siavash Khorsandi) 2017
- **Digital Design Automation**, T.A. (Dr. Morteza Sahebzamani) 2017
- **Electrical Circuit1 Course**, T.A. (Dr. Siavash Khorsandi) 2016
- **Logic Circuits**, T.A. (Dr. Mehdi Sedighi) 2016

¹Selected 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

²Computer 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

HONOR & AWARDS

Ranked Top 3 in term of GPA , among Computer Architecture Students in AUT	2019
Eligible to study in two fields simultaneously	2015
Ranked top 0.6% out of 222,500, Nationwide University Entrance Exam, Mathematics	2014

NOTABLE PROJECTS

- **Utilize OpenMp & CUDA to speed up CNN inference**, (MultiCore Embedded Systems) 2020
- **Implementing an Approximate Multiplier**, by limiting carry propagation for fast partial product accumulation (Computer Arithmetics) 2020
- **Forecasting 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 to measure the room temperature and transfer to Android-Smartphone, (Computer Interface Design) 2018
- **Implementing various projects on FRDM-KL25Z board**, (Embedded Systems) 2018
- **Implementing a home environment controller**, Co-design of a system including lighting control, temperature control and voice recognition using Xilinx MicroBlaze Soft Processor Core 2017
- **Implementing a 16*4 SRAM**, and 2:4 address decoder 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

ONLINE COURSES

- **"Convolutional Neural Networks"** [Certificate](#) - Offered by deeplearning.ai - Coursera 2020
- **"Neural Networks and Deep Learning"** [Certificate](#) - Offered by deeplearning.ai - Coursera 2019
- **"Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization"** [Certificate](#) - Offered by deeplearning.ai - Coursera 2019

ATTENDED WORKSHOPS

- **Third IPM³ Advanced School on Computing**, Computer Architecture 2019
- **8th IPM-HPC Workshop** on Multi-core Systems and Parallel Platforms 2019
- **Introduction to FPGA Workshop**, Co-design and hardware implementation, held in AUT 2016

TECHNICAL SKILLS

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| • Programming: Python(Keras, Tensorflow, PyTorch), C/C++, Java, VHDL, Verilog, Co-Design, CUDA, OpenMP, Assembly | • Hardware CAD Tools: Vivado Design Suite, Xilinx ISE Design Suite, PSPICE, HSPICE, Modelsim, Proteus, Keil |
| • Frameworks & Scientific Tools: Visual Studio, Qt, MATLAB, Arduino IDE | • Operating Systems: Microsoft Windows, Linux |
| • Typesetting Tools: L ^A T _E X, Microsoft office | • Language: English (Fluent), Persian (Native) |

³Institute for Research in Fundamental Sciences