

# NEGAR NEDA

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

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## EDUCATION

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- **University of Tehran (UT), Tehran, Iran** Sep. 2018 - present  
M.Sc. in Computer Architecture  
Cumulative GPA: **17.3/20 (3.53/4)**<sup>1</sup>  
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 3 semesters): **17.81/20 (3.74/4)**  
Cumulative GPA: **17.2/20 (3.52/4)**<sup>2</sup>  
Thesis: Implementation of a Tracking System Using LoRaWAN Protocol
- **National Organization for Development of Exceptional Talents (NODET), Birjand, Iran** Sep. 2010 - Jun 2014  
Diploma, Mathematics and Physics  
Cumulative GPA: **19.68/20**

## RESEARCH INTERESTS

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

## RESEARCH EXPERIENCES

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- **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.
- **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

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- **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

<sup>1</sup>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

<sup>2</sup>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

## HONOR & AWARDS

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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

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- 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

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- "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

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- [Third IPM<sup>3</sup> 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:** VHDL, Verilog, Co-Design, Python(Keras, Tensorflow, PyTorch), CUDA, OpenMP, C/C++, Java, Assembly
- **Frameworks:** & Scientific Tools: Visual Studio, Qt, MATLAB, Arduino IDE
- **Typesetting Tools:** L<sup>A</sup>T<sub>E</sub>X, Microsoft office
- **Hardware CAD Tools:** Vivado Design Suite, Xilinx ISE Design Suite, PSPICE, HSPICE, Modelsim, Proteus, Keil
- **Operating Systems:** Microsoft Windows, Linux
- **Language:** Persian (Native), English (Fluent)

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<sup>3</sup>Institute for Research in Fundamental Sciences