NEGAR NEDA

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

- **University of Tehran (UT), Tehran, Iran** Sep. 2018 - present
  M.Sc. in Computer Architecture
  Cumulative GPA: **17.26/20 (3.63/4)**
  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)**
  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
- FPGA
- Reconfigurable Computing
- Deep Neural Networks
- Approximate Computing
- 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 have been working on implementing 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. I have designed a fusible LUT-based multiplier that uses approximation to reduce the cost of activation/weight products.
- **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.

PUBLICATIONS

N. Neda, S. Ullah, A. Ghanbari, A. Kumar, M. Modarressi and H. Mahdiani, "*MpDNN: Multi-Precision Deep Neural Network Acceleration on FPGAs*", In preparation, University of Tehran, Iran & Dresden University of Technology, Germany.

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**, T.A. (Dr. Siavash Khorsandi) 2016
- **Logic Circuits**, T.A. (Dr. Mehdi Sedighi) 2016

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

- **Accelerating CNN inference by OpenMp & CUDA**, (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 ALU, 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 2020
- **"Neural Networks and Deep Learning"** Certificate - Offered by deeplearning.ai
- **"Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization"** Certificate - Offered by deeplearning.ai - Coursera 2019

ATTENDED WORKSHOPS

- **Third IPM[1] 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

- **Programming**: Python(Keras, Tensorflow, PyTorch), C/C++, Java, VHDL, Verilog, Co-Design, CUDA, OpenMP, Assembly
- **Frameworks & Scientific Tools**: Visual Studio, Qt, MATLAB, Arduino IDE
- **Typesetting Tools**: LaTeX, Microsoft office
- **Hardware CAD Tools**: Vivado Design Suite, Xilinx ISE Design Suite, PSPICE, HSPICE, Modelsim, Proteus, Keil
- **Operating Systems**: Microsoft Windows, Linux
- **Language**: English (IELTS Overal Score: 7.5), Persian (Native)

[1] Institute for Research in Fundamental Sciences