

Hamidreza Shafizadeh Esfandabadi

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Summary — Electrical Engineering student specializing in Digital Systems, with experience in IoT and intelligent systems. Interested in neural networks, hardware-based machine learning, bioinformatics, ASIC, FPGA, and Neuromorphic computing.

Skills

Languages Python, C, C++, JavaScript, HTML, CSS, CUDA Programming

Softwares MATLAB and Simulink, ADS, LTSpice, Pspice, Proteus, Altium Designer, HSpice, Xilinx Vivado, Xilinx ISE

Embedded Systems Linux, Arduino, STM32, AVR, ESP32, Texas Instruments Zigbee Devices, Raspberry Pi

Machine Learning sci-kit learn, Keras, TensorFlow

Databases MongoDB, SQLite

ASIC/FPGA RTL coding (VHDL, Verilog), Design Compiler, Formality, Innovus, Modelsim

DevOps Docker, GitHub

Experience

Abinegar Corp

June 2023 – now

R&D engineer

- Development of Zigbee gateways and hubs
- Design and development of Zigbee routers and end-devices

Amirkabir University of Technology

Teaching Assistant - Logic Circuits

September 2023 – January 2024

- Dr. Zahra Sadat Shariatmadar

Teaching Assistant - Programmable Logic Circuits

September 2023 – January 2024

- Dr. Zahra Sadat Shariatmadar

Teaching Assistant - Basic Programming

September 2023 – January 2024

- Dr. MohammadReza Pourfard

Teaching Assistant - Programmable Logic Circuits

January 2024 – June 2024

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Teaching Assistant - Logic Circuits

January 2024 – June 2024

- Dr. Zahra Sadat Shariatmadar

Teaching Assistant - IOT & Smart Digital Systems

June 2024

- Dr. S.Ahmad Motamedi
- Designing course projects for IOT and Smart Digital Systems courses students

Teaching Assistant - Basic Programming

September 2024 – January 2025

- Dr. MohammadReza Pourfard

Education

Sharif University of Technology

Master of Science in Electrical Engineering (Digital Systems)

2024 - present

Amirkabir University of Technology

Bachelor of Science in Electrical Engineering

GPA: 18.96/20 (second rank)

2020 - 2024

Allameh Helli High School

High School Diploma, Mathematic & Physics

GPA: 19.82/20

2020 - 2017

Projects

Design and implementation of a TRNG on the FPGA platform

September 2024

- Bachelor's Thesis (Supervisor: Dr. Majid Shalchian)
- Implementation of a true random number generator resistant to locking phenomenon on a Spartan-6 FPGA, achieving a throughput of 50 Mbps, with energy consumption of less than 7 nJ/bit, using 191 LUTs and 79 flip-flops, and passing all NIST tests.

Adding several new options to the XV6 operating system

December 2023

- Adding the ability to support history of commands, monitoring of system processes, design of Robin Round scheduler at the user level and multi-level queue scheduler at the kernel level to the XV6 operating system

Developing an airplane control game with voice commands using Python

June 2023

- Designing a voice command recognition system for a game using two methods: MFCC coefficients with an MLP network and spectrograms as images for a CNN network, and implementing the game using the Pygame library

Multi-cycle processor with Mips architecture

April 2023

- Implementation of a multi-cycle processor using VHDL, taking into account the timing issues of different sections with the ability to execute I, J, and R formats, as well as assembly instructions

Effect of concurrent obvious and masking stimulation on the function of aware and unaware working memory April 2019

- Freelance project to implement the testing of aware and unaware working memory software using Python and the Pygame framework, saving the results in an Excel file

Honors

Rank 14 in the 28th Iranian Electrical Engineering Student Olympiad

June 2023

1st place in the first chip design student event - ASIC design

October 2024

- Held with the 6th international microelectronics conference
- Designing the layout of an FPGA in 180nm technology