

Reza Adinepour

Department of Computer Engineering,
Tehran Polytechnic,
Tehran, Iran

Homepage: <https://rezaadinepour.github.io/>
E-mails: adinepour@aut.ac.ir
r3zaadinepour@gmail.com

RESEARCH INTERESTS

- ◇ AI Hardware Accelerators
- ◇ Reconfigurable Computing
- ◇ High Level Synthesis
- ◇ Real-time and Embedded Systems
- ◇ Cyber-Physical Systems(CPS)
- ◇ Neural Networks and Deep Learning

EDUCATION

M.Sc. in Computer Engineering, Sep. 2023 - Present
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

- Thesis: “*FPGA-Based Hardware Acceleration of Remaining Useful Life Prediction of Rotating Machinery Using Transformer Neural Network*”
- Advisor: [Prof. Morteza Saheb Zamani](#)
- GPA: 3.4/4

B.Sc. in Electrical Engineering, Sep. 2019 - Jun. 2023
Shahrood University of Technology, Shahrood, Iran

- Thesis: “*Design Real Time Face Recognition Systems Based on LBP Features on ODROID-XU4 Embedded Computer Board*”
- Advisor: [Prof. Alireza Ahmadyfard](#)
- GPA: 3.4/4

RESEARCH COLLABORATIONS

- ◇ **FPGA-Based Hardware Acceleration of Transformer Neural Network** Aug. 2023 - Now
Research Assistant, Supervisor: [Prof. Morteza Saheb Zamani](#), Department of [Computer Engineering](#), Amirkabir University of Technology.
 - *Studies and research focused on **Transformer hardware acceleration***
I am conducting research on the implementation and acceleration of Transformer neural networks on FPGA with the goal of time series forecasting.
- ◇ **Real Time Embedded Face Recognition System** Sep. 2022 - Jun. 2023
Research Assistant, Supervisor: [Prof. Alireza Ahmadyfard](#), Department of [Electrical Engineering](#), Shahrood University of Technology.
 - *Studies and research focused on **LBP Features***
I design an embedded systems that can detect and recognition human face, based on LBP features. This algorithm implement on **Odroid** embedded computer.

TEACHING EXPERIENCE

Teaching Assistant-Amirkabir University of Technology

- **Embedded Systems Modeling & Design**  Spring 2025
- **Digital Logic Design**  Fall 2024

Invited Lecturer-Amirkabir University of Technology

- **Operating System Lab**  Fall 2026
- **Computer Architecture Lab**  Spring 2025
- **Logic Circuits Lab**   Spring 2024 and Fall 2023

Teaching Assistant-Shahrood University of Technology

- **Digital Electronics** Spring 2023
- **Signal and Systems** Spring 2023, Fall 2022, Spring 2022, Fall 2021
- **Analog Electronic** Fall 2022
- **Circuit Theory** Fall 2020, Spring 2020

	Tutor-Shahrood, Iran <ul style="list-style-type: none"> ◦ Private Altium Designer Tutor 	Apr. 2023 - Aug. 2023
	Tutor-Mashhad, Iran <ul style="list-style-type: none"> ◦ Private Python Programming Tutor ◦ Private MATLAB Programming Tutor ◦ Private C and C++ Programming Tutor 	2021 - Jan. 2022 2021 - Jan. 2022 2020 - Jan. 2022
HONORS AND AWARDS	<ul style="list-style-type: none"> ◊ Direct Admission of Master's Degree at Amirkabir University of Technology (Tehran Polytechnic) ◊ Ranked 2nd (top 1%) in Department of Electrical Engineering, Shahrood University of Technology, Among More Than 120 Students. ◊ Chief of Student Scientific Association of Electrical Engineering 	 2023 2022
NOTABLE PROJECTS	<ul style="list-style-type: none"> ◊ High-Level to RTL Conversion Framework for CNN Acceleration (In Progress) Research and implementation of automated translation of high-level Python CNN models into synthesizable RTL code, enabling efficient FPGA-based hardware acceleration. ◊ Secure and High-Performance Firmware Architecture Customization (In Progress) Research on firmware architecture customization to enhance system security and improve throughput through low-level design modifications. ◊ FPGA Implementation of Logic Locking in Deep Neural Networks Research and implementation of FPGA-based deep neural networks secured with logic locking, integrating PUF-based key generation to protect against unauthorized use and intellectual property theft. ◊ Research-Oriented SystemC Examples  Structured SystemC examples, from basics to advanced, supporting research in digital design and system-level modeling. ◊ Algorithm Acceleration on HBM-PIM Architecture using PIMSimulator  Implemented and evaluated an algorithm on Samsung's HBM-PIM architecture via PIMSimulator, analyzing performance and efficiency gains of processing-in-memory compared to traditional architectures. ◊ FPGA-Based Implementation of CNN Using High Level Synthesis (HLS)  Focused on research aspects of FPGA-based CNN acceleration using HLS, analyzing performance, resource utilization, and scalability. ◊ Edge Detector HW/SW Co-design on FPGA  Conducted research on FPGA edge detection through HW/SW co-design, highlighting design exploration and performance evaluation. ◊ HLS-Based Implementation of Vision Transformer (ViT)  Investigation of hardware acceleration of Vision Transformers through HLS, highlighting trade-offs in latency, throughput, and resource efficiency. ◊ FPGA-Based Implementation of Neural Network  	
WORK EXPERIENCE	Member of Digital System Design Automation Laboratory Tehran, Iran <i>Job Description:</i> Research Assistant	Aug. 2023 - Present
	R&D department Member, at D3H-Group Al Maryah Island, Abu Dhabi, UAE <i>Job Description:</i> Biomedical Signal Processing Developer	Jun. 2023 - Sep. 2023
	R&D department Member, at Radan Electronic StartUp Mashhad, Iran	May. 2022 - Aug. 2022

Job Description: Embedded Software Developer

R&D department Member, at [Integrated Circuit Laboratory](#)
Shahrood, Iran

Jun. 2021 - Sep. 2022

Job Description: Head of The Hard Ware department on OAE Project

SKILLS

- ◇ **Programming Languages:**
 - **Back-end:** C, C++, Rust, Java, Python, Matlab,
 - **HDLs:** VHDL, Verilog, HLS, SystemC, Nvidia CUDA, OpenMP
- ◇ **Machine Learning Tools:** PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, NumPy, Pandas
- ◇ **Applications and Scientific Tools:**
 - **FPGA/Embedded Systems Development:** Xilinx Vivado, Vitis HLS, Vitis AI, FINN, Xilinx ISE, ModelSim, IAR, Keil, CubeMX, Altium Designer, KiCad, Spice, Arduino IDE
 - **Cloud & DevOps Engineering:** Git, GitLab, Docker
 - **Scientific Computing & Research Tools:** MATLAB, Gem5
- ◇ **Operating Systems:** Linux, Microsoft Windows
- ◇ **Typesetting:** T_EX, L_AT_EX, VIM , Microsoft Word, Gnuplot