Mohammad Arman Soleimani

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EDUCATION

Sharif University of Technology   Tehran, Iran
Bachelor of Science in Computer Engineering   *Expected February 2024*

- GPA: 19.17 (20-point scale)
- Undergraduate thesis topic: Processing in memory for DRAM

RESEARCH EXPERIENCE

Research Assistant   September 2021 – Present
Institute for Research in Fundamental Sciences (IPM) and Sharif University of Technology   *Tehran, Iran*

- Explored processing-in-memory techniques for DRAM and SRAM
- Analyzed novel methods for in-memory bit-wise operations and hyper-dimensional computing
- Co-authored two papers published in DAC and ISLPED, one accepted at NocArc,
  and two under review for HPCA

Research Assistant   July 2023 – September 2023
Sharif University of Technology   *Tehran, Iran*

- Implemented real-time scheduling algorithms using Reinforcement Learning (RL)
- Simulated various algorithms and experimented with different setups
- Contributed to two papers in preparation

Research Intern   July 2022 – September 2022
EPFL   *Lausanne, Switzerland*

- Accepted at the Summer@EPFL research internship program
- Studied the state-of-the-art in ASIC and FPGA routing using Reinforcement Learning (RL)
- Tested different implementations and presented results

PUBLICATIONS

- Rohbani, Nezam, **Mohammad Arman Soleimani**, and Hamid Sarbazi-Azad. "CoolDRAM: An Energy-Efficient and Robust DRAM." 2023 IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED). IEEE, 2023. (Received Best Paper in Track 1)

- Rohbani, Nezam, **Mohammad Arman Soleimani**, and Hamid Sarbazi-Azad. "PIPF-DRAM: processing in precharge-free DRAM." Proceedings of the 59th ACM/IEEE Design Automation Conference. 2022.

ADDITIONAL EXPERIENCE

Undergraduate Teaching Assistant   September 2020 – Present
Sharif University of Technology   *Tehran, Iran*

- Assisted with assignments in Operating Systems, Linear Algebra, Computer Architecture,
  Logic Design, Digital System Design, Computer Structure, and Fundamentals of Programming
- Developed course projects for Embedded Systems and Operating Systems

Intern   October 2023 – Present
Pezhvak AI   *Tehran, Iran*

- Studying Natural Language Processing using Deep Learning
- Utilizing language models for Farsi tasks

Mentor, IoT workshop   July 2021 – September 2021
MadeInLobby Event, Sharif University of Technology   *Tehran, Iran*

- Tutored students on Arduino programming and basic electronics
- Guided participants on their projects

Selected Projects

Clock with Games | *Arduino, Edge Impulse*   February 2023
- Created a tabletop clock with multiple features such as games
- Enabled spoken keyword detection using Edge Impulse

Bustan Classification | *Scikit-Learn, Machine Learning*   July 2022
- Collaborated in a team to classify Farsi poem couplets
- Inspected different algorithms and results

Multicore Image Manipulation | *CUDA, AVX2*   July 2022
- Implemented algorithms such as Sobel edge detection and green-screen background changing
- Utilized CUDA and AVX2 instructions

Matrix Block-Multiplier | *Verilog, Xilinx ISE, Spartan6*   July 2021
- Designed, simulated and synthesized a block-multiplier for arbitrary-sized matrices
- Simulated the design using ModelSim and synthesized on an FPGA

Pipelined MIPS Processor | *Quartus, MIPS32*   July 2021
- Implemented a MIPS32-like processor using Quartus schematic design
- Verified the design by writing instructions inside the memory

Relevant Coursework

Introduction to Embedded Machine Learning   Non-credit
Edge Impulse, offered through Coursera

System-On-Chip Design (Graduate)   20.0/20.0
Sharif University of Technology

Artificial Intelligence   20.0/20.0
Sharif University of Technology

Computer Architecture   20.0/20.0
Sharif University of Technology

Digital System Design   19.8/20.0
Sharif University of Technology

Embedded Systems   19.5/20.0
Sharif University of Technology

VLSI Laboratory   19.5/20.0
Sharif University of Technology

Achievements

- Best Paper in Track 1 (Technology, Circuits and Architectures) at ISLPED 2023 for our paper "CoolDRAM: An Energy-Efficient and Robust DRAM"

- Ranked 12th out of over 150,000 participants in the national university entrance exams (Concours), Mathematics and technology track, 2019

- Ranked 6th out of over 130,000 participants in the national university entrance exams (Concours), English language track, 2019

Skills

Languages:
   Farsi: Native

   English: C2, IELTS Academic band 8.5 (S:9, L:9, R:9, W:7.5)

Programming: C/C++, Python, Java, Arduino
Hardware Description: Verilog
Libraries: Matplotlib, Keras, Scikit-Learn
Tools: HSPICE, ModelSim, Xilinx ISE, Quartus, gem5 (learning), Edge Impulse