

Masoud Khanalizadeh Imani

Computer Architecture & Systems Researcher

📍 Tehran, Iran · ✉ masoud.khanalizadehimani@gmail.com · ☎ +98 919 646 9044
🌐 [LinkedIn](#) · 📄 [ResearchGate](#) · 🏠 [GitHub](#) · 🌐 [Website](#)

🎓 Education

• Sep 2020 – Mar 2023

M.Sc. in Computer Engineering (Computer Architecture)

Sharif University of Technology (SUT), Tehran, Iran

GPA: **16.85/20**

Thesis: Reliability Characterization of Open-Source I/O Caching Modules in Data Storage Systems

Advisor: Prof. Hossein Asadi | **Research Lab:** [Data Storage, Networks, & Processing \(DSN\) Lab](#)

Focus: Fault-Tolerant Systems, Hardware Security & Trust, SoC Design, Advanced Computer Networks, On-Chip Communications

• Oct 2012 – Jun 2017

B.Sc. in Computer Engineering (Software Engineering)

Islamic Azad University (IAU), Robat Karim Branch, Iran

GPA: **15.79/20**

Thesis: Solving Sudoku Puzzle by Genetic Algorithm Using C++

Advisor: Dr. Seyyed Ali Asghar Shahidian

Focus: Microprocessor, Computer Architecture Lab, Operating Systems, Logic Design Lab, Software Project

📖 Publications

• March 2023

Authors: Mohammadamin Ajdari, Pouria Peykani Sani, Amirhossein Moradi, **Masoud Khanalizadeh Imani**, Amir Hossein Bazkhane, Hossein Asadi

Title: *Re-architecting I/O Caches for Emerging Fast Storage Devices*

In Proceedings of the 28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, Volume 3 **ASPLOS 2023**, Association for Computing Machinery (ACM), New York, NY, USA, pp. 542–555.

🔗 <https://doi.org/10.1145/3582016.3582041>

• Under Review — ACM EuroSys 2026

Authors: Pouria Peykani Sani*, **Masoud Khanalizadeh Imani***, Mohammadamin Ajdari, Hossein Asadi

**These authors contributed equally to this work.*

Title: *A Near-Optimal SSD Cache Partitioning Framework to Maximize Performance-per-Cost in SAN Storage Systems*

🔬 Research Interests

- | | |
|---|--|
| • Storage Systems
(I/O caching, reliability, performance) | • Emerging Memory Architectures
(PNM, CXL, disaggregation) |
| • Computer Architecture | • Efficient Training of Large-Scale AI/LLMs |
| • Data Movement Optimization | • Sustainable and Energy-Efficient Computing |

💡 Patents (Applications in Preparation)

- Testing platform for disk power outages
- Disk wipe and clone platform
- Software module for automatic I/O cache size optimization

Experience

• Feb 2021 – Aug 2024

Researcher & Developer — Data Storage Systems

High-Performance Data Storage (HPDS) Lab, Tehran, Iran, [Company Website](#)

- Worked on SSD/HDD I/O caching with both performance and reliability characterization.
- Designed and evaluated storage modules and prototypes.

• Aug 2013 – Feb 2018

Network Technician & Help Desk

Aria Technical Services, Tehran, Iran

- Provided IT support including network setup, desktop maintenance, and basic CCTV system installation.

Selected Projects

• Aug 2025

CIMulator — Computation-In-Memory Simulator

Independent Project — Sole Designer & Developer

Interactive Jupyter-based simulator for memristor devices and crossbar arrays with real-time plotting and intuitive GUI. [GitHub Repository](#)

• 2023–2024

PASS — I/O Cache Test & Analysis Framework

Developed as part of ASPLOS'23 paper experiments

Framework for testing, analyzing, and benchmarking I/O cache modules across different configurations. [GitHub Repository](#)

• 2021–2024

Reliability Analysis of Open-Source I/O Cache Modules

Research Project at HPDS Lab, Tehran

Conducted empirical evaluation of multiple open-source cache modules under diverse workloads to characterize stability and fault-tolerance.

For a complete list of projects, see my [GitHub profile](#).

Academic Experience

• Apr 2025

Question Designer & Judge — Robotics Track

HardWar 2025 Annual Competition, Sharif University of Technology

Designed robotics questions and served as a judge in an annual national student hardware competition.

[Competition Website](#)

• Feb 2022 – Jun 2022

Teaching Assistant — Logic Circuits Lab

Sharif University of Technology

Assisted students in lab experiments and supported course instruction. Supervisor: Dr. Shaahin Hessabi

• Oct 2015 – Jun 2017

Founder & Team Lead — Robotics Lab

Islamic Azad University (IAU), Robat Karim Branch, Iran

Established a robotics lab with university funding, managed a student team building maze-solving and path-finding robots, and led participation in national competitions. [Project Documentation & Videos](#)

Honors

- **Sep 2020** Ranked 41st (Top 0.03%) in Iran's National Entrance Exam for M.Sc. in Computer Engineering.

- **Jul 2009** Provincial rank, Kharazmi Student Festival. [Certificate](#)

Workshops & Certificates

- Apr 2025**
10th Winter Seminar Series (WSS10)
 Sharif University of Technology • [Certificate](#)

- 2015–2016**
MCSE 2012
 CANDO Institute, Tehran, Iran • [Certificate](#)

- Apr 2025**
5-Day Gen AI Intensive
 Google/Kaggle • [Certificate](#)

- Jul 2015**
Network+
 CANDO Institute, Tehran, Iran • [Certificate](#)

Skills

Programming

C/C++ • • ◦
 Python • • ◦
 Bash/Shell • • ◦

Software / Tools

LaTeX / Overleaf • • ◦
 Git / GitHub • • ◦
 Linux (CLI, perf) • • ◦
 VMware/VirtualBox • • ◦
 Xilinx ISE • • ◦
 RAID (mdadm, MegaCli, storcli) • • ◦

Data / Analysis

NumPy • ◦ ◦
 Pandas • ◦ ◦
 Matplotlib • ◦ ◦

Currently Exploring

PyTorch ◦ ◦ ◦
 DeepSpeed ◦ ◦ ◦
 MPI ◦ ◦ ◦
 NCCL ◦ ◦ ◦

Soft Skills

Team-oriented
 Independent
 Adaptable

Legend: • • • Advanced • • ◦ Intermediate • ◦ ◦ Basic ◦ ◦ ◦ Beginner

Languages

Language	Proficiency
Persian (Farsi)	Native
English	Intermediate (TOEFL scheduled: Dec 6, 2025; target 95+)

References

Dr. Hossein Asadi

Professor, Computer Engineering, Sharif University of Technology

✉ asadi@sharif.edu

Master's Advisor

Dr. Shaahin Hessabi

Associate Prof., Computer Engineering, Sharif University of Technology

✉ hessabi@sharif.edu

TA Supervisor & Course Instructor (SoC Design, Testability)

Dr. Mohammadamin Ajdari

Head of R&D, HPDS Lab, Tehran

✉ m.ajdari@sharif.edu

Manager at HPDS & Co-author

Dr. Alireza Ejlali

Associate Prof., Computer Engineering, Sharif University of Technology

✉ ejlali@sharif.edu

Course Instructor (Fault-Tolerant Systems)

Additional references available upon request.