Masoud Khanalizadeh Imani

Computer Architecture & Data Storage 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 Bazkhanei, 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)
- **Data Movement Optimization**
- **Persistent Memory Programming and System Software Design**
- **Computer Architecture**
- **Data-Centric and Near-Data 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

- **Oct 2025**
  C for Everyone: Programming Fundamentals
  University of California, Santa Cruz • 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 iBT scheduled: Jan 3, 2026)

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.