

# ALI FARAHANI

[www.alifarahani.com](http://www.alifarahani.com) • [ali.farahani@sharif.edu](mailto:ali.farahani@sharif.edu) • +98 (921) 786 9334

## EDUCATION

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**Sharif University of Technology** Tehran, Iran  
M.Sc., Computer Engineering Oct. 2021 – Jun. 2024  
GPA: 18.43 (out of 20) • **4 (out of 4)**  
Thesis: *I/O Workload Characterization in High-Performance Computing (HPC) Applications*  
Supervisor: Prof. Hossein Asadi

**University of Tehran** Tehran, Iran  
B.Sc., Computer Engineering Sep. 2016 – Jul. 2020  
GPA: 18.52 (out of 20) • **3.9 (out of 4)**  
Thesis: *Presenting a Meta-Heuristic Algorithm for Optimizing Scheduling and Energy Consumption in Fog Computing*  
Supervisor: Prof. Zahra Movahedi

## RESEARCH INTERESTS

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- High-Performance Computing (HPC)
- Data Storage Systems
- Operating Systems
- Systems for Machine Learning

## RESEARCH EXPERIENCE

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**Sharif University of Technology** Oct. 2021 - Present  
*Graduate Research Assistant, Data Storage, Networks & Processing (DSN) Lab*

- Conducted research in HPC and I/O characterization to accelerate machine learning workloads by fine-tuning in-framework data loading hyper-parameters (software side) and discovering optimal storage architectures to mitigate I/O bottlenecks (hardware side) under the supervision of Prof. Hossein Asadi.
- Developed a new platform for characterizing data-intensive applications that traces many aspects of the system, from Disk I/O to CPU/GPU utilization with visual/textual results.

**Sharif High-Performance Computing (HPC) Center** Jan. 2022 – Present  
*Researcher, High-Performance Virtual Machines (HPVM) Section*

- Worked with a team of experts to run and characterize deep learning workloads in virtualized environments.

## PUBLICATIONS

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“Accelerating CNN Training with I/O Characterization and Fine-Tuning Data Loading Hyper-Parameters”, A. Farahani, E. Adibi, M. Ajdari, H. Asadi, In Preparation, 2024. [[slides](#)]

## TEACHING EXPERIENCE

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### Sharif University of Technology

Oct. 2021 – Present

*Teaching Assistant, Department of Computer Engineering*

- Advanced Operating Systems (Graduates)
- Operating Systems (Undergraduates)
- Computer Architecture (Undergraduates)

### University of Tehran

Oct. 2018 – Jul. 2020

*Teaching Assistant, Faculty of Engineering*

- Data Structures & Algorithms (Undergraduates)
- Fundamentals of Computer Programming (Undergraduates)
- Calculus 1 & 2 (Undergraduates)

## INDUSTRY EXPERIENCE

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### Yaplle

Tehran, Iran

*Senior Software Developer, Part-time*

Feb. 2023 – Sep. 2023

- Developed a state-of-the-art and easy-to-use approach for doing banking transactions.
- Collaborated with a motivated and productive team of FinTech experts to improve teamwork skills and learn modern software technologies.

### OMEGA

Tehran, Iran

*Software Developer, Full-time*

Aug. 2020 – Mar. 2021

- Implemented software and hardware projects for known organizations and large-scale companies of Tehran province, e.g., Tehran Municipality.
- Accomplished backend services and mobile applications with Python and Flutter.

## ACADEMIC PROJECTS

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- **I/O Workload Characterization:** Created a Python-based platform that monitors and characterizes a Linux machine running any data-intensive application and provides textual and visual results from many aspects of the system, such as CPU, GPU, Disk utilization, Disk bandwidth and IOPS, I/O access frequency, reuse distance, etc. [[link](#)]
- **Offera:** Developed a suggestive and proximity marketing platform that offers new products to customers based on their previous purchase history using data science algorithms and their location inside shopping centers. The platform comprised a web-based monitoring dashboard, data mining tools, and a mobile application and was titled the best IoT startup at the University of Tehran. [[link](#)]
- **Sharif HPVM:** Contributed to building the hardware/software infrastructure of Sharif high-performance virtual machine (HPVM) by setting up NVIDIA GPUs, high throughput storage, VMware ESXi hypervisor, and Zabbix monitoring tool.

## SKILLS

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- Strong knowledge of programming languages: C/C++, Java, and Python for software and Verilog/VHDL for hardware development.
- Experienced in tools, software and environments: MATLAB, LaTeX, Linux Kernel Programming, and VMware ESXi.
- Language Skills: English (*Full professional proficiency*), Persian (*Native proficiency*)

## HONORS & AWARDS

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- Ranked as 2<sup>nd</sup> top student among the bachelor's graduate class, University of Tehran
- Ranked within the top 10% of the master's graduate class, Sharif University of Technology
- Ranked within the top 1% of ~200,000 students participating in the Iranian University Entrance Exam (called "Konkur").
- Ranked within the top 0.5% of ~20,000 students participating in the University Entrance Exam for Master of Computer Engineering.
- Awarded as "Top 3 IoT Startups" among all participants in the "IoT Startup Competition Festival" held at the University of Tehran Science & Technology Park (UTSTP).

## MEMBERSHIPS

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- Prominent member of the student's scientific association, Faculty of Engineering, University of Tehran (2019 – 2020).
- Editor in chief of the student's scientific "Zeros & Ones" magazine, Faculty of Engineering, University of Tehran (2018 – 2020).
- Examiner of the annual hardware competition called "Hard War", Department of Computer Engineering, Sharif University of Technology (2023).

## REFERENCES

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### **Hossein Asadi, Professor**

*Sharif University of Technology, Department of Computer Engineering*

Email: [asadi@sharif.edu](mailto:asadi@sharif.edu)

Website: <https://sharif.edu/~asadi>

### **Zahra Movahedi, Assistant Professor**

*University of Tehran, Faculty of Engineering*

Email: [zmovahedi@ut.ac.ir](mailto:zmovahedi@ut.ac.ir)

### **Mohammadamin Ajdari, Senior Researcher**

*High-Performance Data Storage (HPDS) Corp., Tehran, Iran*

Email: [m.ajdari@sharif.edu](mailto:m.ajdari@sharif.edu)

Website: <https://sites.google.com/view/mohammadamin-ajdari>