

RESEARCH INTERESTS

High Performance Computing, Parallel Computing, Distributed Processing, GPU Computing

EDUCATIONS

- 2020-25

Ph.D. In Electrical and Computer Engineering, Queen’s University, Kingston, Canada

Research topic: High-performance GPU-Aware Communications; **GPA: 4.0/4.0**
- 2012-15

M. Sc. In Software Engineering, Shiraz University, Shiraz, Iran.

Ranked 3<sup>rd</sup> among students with **GPA 17.66/20.00**

Thesis: Design & Evaluation of a Large-Scale Data Processing Framework for Modern GPUs. (Enabling Apache Tez to use GPU) supervised by Dr. F. Khunjush
- 2007-12

B. Sc. In Software Engineering, Shiraz University, Shiraz, Iran

PUBLICATIONS (Link to Google Scholar)

- 2024

A. Sojoodi, Y. H. Temucin, and A. Afsahi, “Enhancing Intra-Node GPU-to-GPU Performance in MPI + UCX through Multi-Path Communication,” in *Proceedings of the International Workshop on Extreme Heterogeneity Solutions (ExHET)*, pp. 1–6, (Best Paper Award)
- 2022

P. Alizadeh, A. Sojoodi, Y. H. Temucin, and A. Afsahi, “Efficient Process Arrival Pattern Aware Collective Communication for Deep Learning,” In Proceedings of the 29th European MPI Users' Group Meeting (EuroMPI).
- 2022

Y. H. Temucin, A. Sojoodi, P. Alizadeh, B. W. Kitor, and A. Afsahi, “Accelerating Deep Learning using Interconnect-Aware UCX Communication for MPI Collectives,” *IEEE Micro*, 2022, pp. 68–76.
- 2021

Y. H. Temucin, A. Sojoodi, P. Alizadeh, and A. Afsahi, “Efficient Multi-Path NVLink / PCIe-Aware UCX based Collective Communication for Deep Learning,” *Proceedings of Hot Interconnects*, 2021, pp. 1–10.
- 2020

A. Sojoodi, M. Salimi Beni, and F. Khunjush, “Ignite-GPU: a GPU-enabled in-memory computing architecture on clusters,” *Journal of Supercomputing*, 2020, pp. 1–28.
- 2020

M. S. Beni, A. Sojoodi and F. Khunjush, "A GPU-Enabled Extension for Apache Ignite to Facilitate Running Genetic Algorithms," *2020 (CADS)*, Rasht, Iran, 2020, pp. 1-8.

PROFESSIONAL EXPERIENCES

- 2022-Now

GPU Software Engineer

Part-time; at [Distributive, Kingston, Ontario, Canada](#).

Challenges: Enabling WebGPU in the Distributive compute network

Achievement: Port LeGendre Pair (length 45) algorithm to WebGPU with +700x speedup
- 2023-Now

CUDA Developer

Part-time; at [R.E. Grant Consultants](#), Kingston, Ontario, Canada.

Challenges: Design and development of a CUDA microbenchmark for Rockport Networks (CERIO) systems.
- 2022-Sum

Research Intern

Part-time; at [Microsoft Research](#) (MSR), Seattle, Washington, United States (Remote)

Achievement: Enable GPU in DistDL framework utilizing CuPy
- 2018-19

R&D, XenServer and Linux administrator

Part-time; at *HPC group, CSE Dept, Shiraz University; supervised by Dr. F. Khunjush*.

Challenges: To setup and maintain Apache Hadoop, Spark, Tez and Ignite clusters.

Personal Info

Address

Available on Request

E-mail

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Web

[amirsojoodi.github.io](#)  
[github.com/amirsojoodi](#)  
[linkedin.com/in/amirsojoodi](#)

Languages

Persian (Native)

English (Fluent)

French (Basic)

Computer Skills

Programming Languages

C/C++, Java

Python, JavaScript

Platforms & Tools

CUDA, OpenMP, MPI, UCX, Pthreads, WebGPU

PyTorch, Tensorflow, Apache Ignite, Apache Spark, Apache Tez, Apache Hadoop

Auto Tools, Perf, Valgrind, NVIDIA Nsight Tools, Arm DDT, Gdb, Gprof

Operating Systems

Ubuntu, Windows

Debian, CentOS, Xen

References

Dr. A. Afsahi

[ahmad.afsahi@queensu.ca](#)

Dr. R. Grant

[ryan.grant@queensu.ca](#)

Dr. F. Khunjush

[fkhunjush@shirazu.ac.ir](#)

Dr. P. Witte

[pwitte@microsoft.com](#)

Dr. A. Etemad

[ali.etemad@queensu.ca](#)

Dr. Dastghaibi

[dastghaib@shirazu.ac.ir](#)

- 2016-17 **Servers administrator, Data Visualization and Java backend developer**  
Full-time; at *Aria Hamrah Samaneh, Shiraz Section, Software Group, Shiraz, Iran.*  
Challenges: Data warehouse research and develop, data visualization with Tableau
- 2015-16 **R&D, Business Intelligence (BI) Developer**  
Full-time; at ICTC (Information and Communication Technology Center), Shiraz University
- 2013-15 **R&D, XenServer and Linux administrator**  
Part-time; at *HPC group, CSE Dept, Shiraz University; supervised by Dr. F. Khunjush.*  
Challenges: User management, setup and maintain various services such as, nexus repository manager, apt cacher, squid firewall, version control system, etc.

### AWARDS AND ACCOMPLISHMENTS

- 2020 **Parya Scholarship**, provided by [Parya Trillium Foundation Scholarship](#)
- 2019 **Best T.A** at CSE, Shiraz University. According to the students’ poll, GPU Programming
- 2016 **9<sup>th</sup> Place** at National IoT Hackathon, IUST, Tehran, Iran. Introducing “*Intelligent Outlet*”
- 2015 **Silver Medal** at 7<sup>th</sup> National JavaChallenge, Sharif University, Tehran, Iran.
- 2010 **5<sup>th</sup> Place** at Kashan University 2<sup>nd</sup> International Programming contest, Kashan, Iran.

### TEACHING EXPERIENCES

- 2023 **Introduction to Algorithms** T.A., Undergraduate; Queen’s University
- 2020-23 **Digital Systems Engineering** T.A., Undergraduate; Queen’s University (4 times)
- 2020,21,22 **Fundamentals of Information Structure** T.A., Undergraduate; Queen’s University
- 2016 **Introduction to OOP with Java** Course Instructor; Shiraz University
- 2014 **Multicore Programming** T.A., Graduate; Shiraz University
- 2013,15,18 **GPU Programming** T.A., Undergraduate; Shiraz University
- 2012,13 **Software Engineering Lab** Course Instructor, Undergraduate; Shiraz University
- 2012 **Microprocessors** T.A., Undergraduate; Shiraz University
- 2010,11,12 **Operating Systems** T.A., Undergraduate; Shiraz University
- 2010 **Principles of Programming (C)** T.A., Undergraduate; Shiraz University
- 2009,10,12 **System Programming (Assembly)** T.A., Undergraduate; Shiraz University

### OTHER RELATED EDUCATION (SELECTED)

- 2023-03 GTC Conference, by NVIDIA
- 2022-08 **NVIDIA Deep Learning Institute (DLI) Certificates:**
  1. Fundamentals of Accelerated Computing with CUDA Python,
  2. Fundamentals of Deep Learning, and
  3. Accelerating CUDA C++ Applications with Concurrent Streams
- 2021-11 Super Computing (SC) Conference
- 2021-08 SCINET Summer Workshop: **Debugging and Performance Tuning**
- 2021-08 Hot Interconnect Conference
- 2021-07 PUMPS+AI Conference by Barcelona Supercomputing Center
- 2021-06 SHARCNET HPC Summer Workshop: **Modern C++ and Parallel Programming**
- 2014-11 NVIDIA & Udacity Course: **Intro to Parallel Programming with GPUs**

### Related Talks & Seminars

- 2023, **Workshop on Documentation** at Book Club Group, Kingston Canada
- 2022, **LeGenre Pairs Optimization**, at Distributive Book Club, Kingston
- 2022, **Introduction to GPUs**, at Distributive Book Club, Kingston
- 2019, **Start a Good Career** at CSE Dept Shiraz University
- 2016, **Software Engineering** at CSE Dept Shiraz University
- 2014, **Time Management** as Keynote Speaker at 8<sup>th</sup> *Break Time in University* Conference
- 2014, **Future Education** as Keynote Speaker at 1<sup>st</sup> *Entekhab-e-Bartar* Conference
- 2011, **Art of Googling** at CSE Dept Shiraz University
- 2011, **Compilers & Interpreters** at CSE Dept Shiraz University

### Some Volunteer Activities

- 2023, **PhD Representative** at Queen’s University Graduate ECE Student Council (GECE)
- 2023, **Panelist** at Queen’s University, Global Education Conference
- 2021-22, **Podcast Host and Editor** at [International Voices](#) at Queen’s Podcast, produced by [QUIC](#) and [SASS](#)
- 2017-2019, **Photo & Video Editor** at Chashnak Bakery ([Instagram](#)) as photographer & image/video editor
- 2009-2019, **Staff Committee** at Break Time in University ([BTIU](#)) which is a 3-day conference held by undergraduate and graduate students annually since 2006 for high school students.
- 2012-2016, **Co-founder and member** of Tolu group in which we held seminars and talks about psychology, psychoanalysis, philosophy, history, and sociology
- 2011-2014, **President of** Students’ Scientific Group, CSE Dept, Shiraz University, in 2011 and its active member during 2009-2012 and 2014