

Mohsen Gavahi

Ph.D. student

☎ 850-345-1306

✉ gavahi@cs.fsu.edu

🌐 <http://ww2.cs.fsu.edu/~gavahi/>

🏠 Department of Computer Science,
Florida State University, Tallahassee, FL 32306

Education

- **Ph.D. student** Computer Science, Florida State University, Tallahassee, FL, USA 2017 to present
 - **GPA:** 3.64 out of 4.
- **M.Sc.** Computer Architecture, Sharif University, Tehran, Iran 2010 to 2012
 - **GPA:** 3.4 out of 4.
- **B.Sc.** Computer hardware engineering, Shahid Beheshti University, Tehran, Iran 2004 to 2009

Research Interests

- High Performance Computing (HPC)
- Parallel & Distributed Systems
- Container Technology
- Multicore Programming

Publications

- **Efficient Algorithms for Encrypted All-gather Operation (Accepted)** 2021
 - 35th IEEE International Parallel & Distributed Processing Symposium
- **CryptMPI: A Fast Encrypted MPI Library (Under review)** 2021
 - 50th IEEE International Conference on Parallel Processing (ICPP)
- **Performance Evaluation and Modeling of Cryptographic Libraries for MPI Communications (Under review)** 2021
 - IEEE Transactions on Dependable and Secure Computing journal
- **Encrypted Collective Communication in Multi-core Clusters (Under review)** 2021
 - IEEE International Conference for High Performance Computing, Networking, Storage, and Analysis (SC21)
- **Encrypted All-reduce on Multi-core Clusters (Under review)** 2021
 - IEEE International Performance Computing and Communications (IPCCC21)
- **An Empirical Study of Cryptographic Libraries for MPI Communications** 2019
 - 21st IEEE International Conference on Cluster Computing
- **A low-power hybrid non-volatile cache with asymmetric coding,** 2017
 - 7th International Conference on Computer and Knowledge Engineering

- **High Performance GPU Implementation of k-NN Based on Mahalanobis Distance,** 2015
 - 20th International Symposium on Computer Science and Software Engineering
- **Efficient Continuous Skyline Computation on Multi-Core Processors Based on Manhattan Distance,** 2015
 - 13th International Conference on Formal Methods and Models for System Design
- **Cost-Efficient Implementation of k-NN Algorithm on Multi-Core Processors,** 2014
 - 12th International Conference on Formal Methods and Models for System Design

Experiences

- Software Enhancing Data and Communication Security in HPC Clusters, FSU, FL. Sep. 2017 to Present
 - Developing a modified version of MVAPICH empowered by cryptographic methods.
 - github.com/gavahi/CryptoBench-InfiniBand
 - Developing new versions of MPI collective operations (Allreduce, Allgather, Bcast, ...) which cryptographic schemes are embedded in them.
 - Utilizing Containers technology (Docker and Singularity) to enhance security in HPC.
- Senior Software Developer, High Performance Computing, IPM, Iran. Apr. 2014 to Sep. 2017
 - Developing Multicore Programming by Multiprocessor and GPU
 - Working on Reconfigurable Computing
 - Working on Video Processing Methods
- Software Developer, Ariana Institute, Iran. Apr. 2013 to 2014
 - Developing for academic purpose simulators
- Research assistant, Energy-Aware Systems Laboratory, Sharif University, Iran. Jul. 2012 to 2013
 - Developing Genetic algorithm on GPU
- Research assistant, Storage Systems & Network Laboratory, Sharif University, Iran. Sep. 2011 to 2012
 - Developing Placement algorithm for Heterogeneous Reconfigurable Systems

Honors

- Ranked 2nd in 13th Memocode hardware/software co-design contest 2015
 - Performance and Cost-Performance around
 - <http://memocode.irisa.fr/2015/designcontest.html>
- Ranked 1st in 12th Memocode hardware/software co-design contest 2014
 - Cost-Performance around
 - <http://memocode.irisa.fr/2014/>