

## Reza Salkhordeh

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CONTACT INFORMATION	Staudingerweg 9 Johannes Gutenberg-Universität Mainz 55128 Mainz, Germany	+49 6131 3937698 <a href="https://salkhordeh.de">https://salkhordeh.de</a> reza.salkhordeh@sharif.edu
EDUCATION	<b>From 2007 to 2018</b>  <b>Sharif University of Technology (Oct. 2013-Dec. 2018)</b> , Tehran, Iran Ph.D., Computer Engineering <ul style="list-style-type: none"><li>• Thesis Topic: <i>Optimization of Operating System to Employ Emerging Memory Technologies</i></li><li>• Advisor: Prof. Hossein Asadi</li></ul> <b>Sharif University of Technology (Oct. 2011-Sep. 2013)</b> , Tehran, Iran M.Sc., Computer Engineering <ul style="list-style-type: none"><li>• Topic: <i>OS-Level Data Tiering to Improve Performance of RAID Arrays</i></li><li>• Advisor: Prof. Hossein Asadi</li></ul> <b>Ferdowsi University of Mashhad (Oct. 2007-Sep. 2011)</b> , Mashhad, Iran B.Sc., Computer Engineering <ul style="list-style-type: none"><li>• Topic: <i>Ontology Partitioning</i></li><li>• Advisor: Prof. Mahmoud Naghibzadeh</li></ul>	
ACADEMIC EXPERIENCE	<b>Lecturer</b> Storage Systems Advanced Topics in Operating Systems Storage Systems Advanced Topics in Operating Systems Storage Systems Johannes Gutenberg-Universität Mainz <b>Postdoctoral Researcher</b> Efficient Computing and Storage Group, Center for Data Processing, Johannes Gutenberg-Universität Mainz Supervisor: André Brinkmann, Professor <b>Research Assistant</b> Supervising Four M.Sc. & Six B.Sc. Students Data Storage, Networks, & Processing (DSN) Laboratory, Department of Computer Engineering, Sharif University of Technology Supervisor: Hossein Asadi, Professor <b>Reviewer</b> <ul style="list-style-type: none"><li>• USENIX Conference on File and Storage Technologies (FAST'24) Artifact Evaluation Committee Member</li><li>• Transactions on Parallel and Distributed Systems (TPDS) (x3)</li><li>• Transactions on Computers (TC) (x8)</li><li>• The International Conf. for High Perf. Comp., Netw., Stor., and Analysis (SC'21) Program Committee</li><li>• IEEE Access (x9)</li><li>• International Conference on Architecture of Computing Systems (ARCS'23) Program Committee</li></ul>	2020 to present Summer 2022 Winter 2021/22 Summer 2021 Winter 2020/21 Summer 2020 2018 to present 2012 to 2018 2016 to present

- Tran. on Computer-Aided Design of Integrated Circuits and Systems (TCAD) (x10)
- Transactions on Dependable and Secure Computing (TDSC) (1x)
- Principles and Practice of Parallel Programming (PPoPP'18)  
Artifact Evaluation Committee Member
- International Conference on Architecture of Computing Systems (ARCS'20)  
Program Committee
- Principles and Practice of Parallel Programming (PPoPP'18)  
Artifact Evaluation Committee Member
- Microprocessors and Microsystems  
Elsevier

PATENTS

1. “An Efficient Reconfigurable Cache Architecture for Storage Systems”, **US Patent**, Application granted, US10824562B2, 2019.
2. “OS-Level Data Tiering to Improve Performance of RAID Arrays”, Iran State Organization for Deeds and Properties, Application No. 139450140003002937, **Approved**, 2017.
3. “Re-configurable I/O Caching Architecture with Online Workload Characterization”, Iran State Organization for Deeds and Properties, Pending, 2016.

INDUSTRY  
EXPERIENCE

- Technical Lead** 2015 to 2018  
High Performance Data Storage System (HPDS) Co.  
Tehran, Iran
- Product owner
  - Project manager
  - Managing devops
  - Architecting storage systems
- Internship** 2014  
High Performance Data Storage System (HPDS) Co.  
Tehran, Iran
- Managing server room
  - ESX Cluster Management
- Developer** 2010 to 2013  
Tameshk Co.  
Tehran, Iran  
Part-time
- C# Developer

PUBLICATIONS

1. N. Moti, A. Brinkmann, M. Vef, P. Deniel, J. Carretero, P. Carns, J. Acquaviva, **R. Salkhordeh**, “The I/O Trace Initiative: Building a Collaborative I/O Archive to Advance HPC,” *8th International Parallel Data Systems Workshop (PDSW)*, Denver, USA, 2023.
2. N. Moti, **R. Salkhordeh**, A. Brinkmann, “Protected Functions: User Space Privileged Function Calls,” *International Conference on Architecture of Computing Systems*, PP. 117-131, 2022.
3. M. Ajdari, P. Raaf, M. Kishani, **R. Salkhordeh**, H. Asadi, A. Brinkmann, “An Enterprise-Grade Open-Source Data Reduction Architecture for All-Flash Storage Systems,” *Proceedings of the ACM on Measurement and Analysis of Computing Systems (SIGMETRICS)*, 6(2): 1-27, 2022.
4. N. Moti, F. Schimmelpfennig, **R. Salkhordeh**, D. Klopp, T. Cortes, U. Rückert, A. Brinkmann, “Simurgh: a fully decentralized and secure NVMM user space

- file system,” *The International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, St. Louis, Missouri, USA, November 14-19, 2021.
5. **R. Salkhordeh**, K. Kremer, L. Nagel, D. Maisenbacher, H. Holmberg, M. Bjørling, A. Brinkmann, “Constant Time Garbage Collection in SSDs,” *IEEE International Conference on Networking, Architecture and Storage (NAS)*, Riverside, CA, USA, October 24-26, 2021.
  6. F. Schimmelpfennig, M.-A. Vef, **R. Salkhordeh**, A. Miranda, R. Nou, A. Brinkmann, “Streamlining distributed Deep Learning I/O with ad hoc file systems,” *IEEE International Conference on Cluster Computing (CLUSTER)*, Portland, OR, USA, September 7-10, 2021.
  7. N. Krauter, P. Raaf, P. Braam, **R. Salkhordeh**, S. Erdweg, A. Brinkmann, “Persistent Software Transactional Memory in Haskell,” *Proceedings of the ACM on Programming Languages (ICFP)*, 1-29 (2021).
  8. S. Ebrahimi, **R. Salkhordeh**, S. A. Osia, A. Taheri, H. R. Rabiee, H. Asadi, “RC-RNN: Reconfigurable Cache Architecture for Storage Systems Using Recurrent Neural Networks,” *IEEE Transactions on Emerging Topics in Computing*, (2021).
  9. F. Schuhknecht, A. Priesterroth, J. Henneberg, **R. Salkhordeh**, “AnyOLAP: analytical processing of arbitrary data-intensive applications without ETL,” *Proceedings of the VLDB Endowment*, 14(12): 2823-2826 (2021).
  10. A. Frank, M. Baumgartner, **R. Salkhordeh**, A. Brinkmann, “Improving checkpointing intervals by considering individual job failure probabilities,” *35th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Portland, OR, USA, May 17-21.
  11. S. Ahmadian, **R. Salkhordeh**, O. Mutlu, and H. Asadi, “ETICA: Efficient Two-Level I/O Caching Architecture for Virtualized Platforms,” *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 32(10): 2415-2433.
  12. M.-A. Vef, R. Steiner, **R. Salkhordeh**, J. Steinkamp, F. Vennetier, J.-F. Smigielski, and A. Brinkmann, “DelveFS-An Event-Driven Semantic File System for Object Stores,” *IEEE International Conference on Cluster Computing (CLUSTER)*, Kobe, Japan, September 14-17, 2020.
  13. **R. Salkhordeh** and A. Brinkmann, “Online Management of Hybrid DRAM-NVMM Memory for HPC,” *IEEE 26th International Conference on High Performance Computing, Data, and Analytics (HiPC)*, Hyderabad, India, 2019, pp. 277-289.
  14. **R. Salkhordeh**, O. Mutlu, and H. Asadi, “An Analytical Model for Performance and Lifetime Estimation of Hybrid DRAM-NVM Main Memories,” *IEEE Transactions on Computers (TC)*, vol. 68, no. 8, pp. 1114-1130, 1 Aug. 2019.
  15. S. Ahmadian, **R. Salkhordeh** and H. Asadi, “LBICA: A Load Balancer for I/O Cache Architectures,” *Design, Automation & Test in Europe Conference & Exhibition (DATE)*, Florence, Italy, 2019, pp. 1196-1201.
  16. **R. Salkhordeh**, M. Hadizadeh, and H. Asadi, “An Efficient Hybrid I/O Caching Scheme using Heterogeneous SSDs,” in *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 30, no. 6, pp. 1238-1250, 1 June 2019.
  17. **R. Salkhordeh**, S. Ebrahimi, and H. Asadi, “ReCA: an Efficient Reconfigurable Cache Architecture for Storage Systems with Online Workload Characterization,” *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 29, no. 7, pp. 1605-1620, 1 July 2018.

18. **R. Salkhordeh**, H. Asadi, “An Operating System level data migration scheme in hybrid DRAM-NVM memory architecture,” *Design, Automation & Test in Europe Conference (DATE)*, pp. 936–941, 2016.
19. **R. Salkhordeh**, H. Asadi, and S. Ebrahimi, “Operating system level data tiering using online workload characterization,” *The Journal of Supercomputing*, vol. 71, no. 4, pp. 1534–1562, 2015.

AWARDS &  
HONORS

- Research Grant of National Elite Foundation 2015
- Ranked 3rd in National PhD. Exam Among more than 5,000 Participants 2014
- Ranked 35th in National MS. Exam Among more than 10,000 Participants 2011

TEACHING  
ASSISTANT

- Technical Computer Science Winter 2022–23  
Instructor: Prof. André Brinkmann
- Technical Computer Science Winter 2019–20  
Instructor: Prof. André Brinkmann
- Advanced Topics in Operating Systems Summer 2019  
Instructor: Prof. André Brinkmann
- Operating Systems Spring 2016–17  
Instructor: Prof. Hossein Asadi
- Operating Systems Spring 2015–16  
Instructor: Prof. Hossein Asadi
- Operating Systems Spring 2014–15  
Instructor: Prof. Hossein Asadi
- Operating Systems Spring 2013–14  
Instructor: Prof. Hossein Asadi
- Semantic Web Fall 2013–14  
Instructor: Prof. Morteza Amini
- Operating Systems Fall 2013–14  
Instructor: Prof. Rasool Jalili
- Semantic Web Spring 2012–13  
Instructor: Prof. Morteza Amini
- Operating Systems Fall 2012–13  
Instructor: Prof. Rasool Jalili

## PROGRAMMING

- Python ★★☆
  - 3+ years industry experience
- C/C++ ★★☆
  - 3+ years experience
- Go ★★☆
  - 1+ year industry experience
- Kernel Programming ★★☆
  - 2+ years academia and 1+ year industry experience
- C# ★★☆
  - 1+ year industry experience