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Bardia Safaei

Academic Curriculum Vitae

Updated on 1st of December 2024

Brief Overview

Dr. Bardia Safaei received the Ph.D. degree in computer engineering from Sharif University of Technology, Tehran, Iran, in 2021. As a Ph.D. visiting researcher, he was with the Chair for Embedded Systems (CES), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, from 2019 to 2020. He is currently a faculty member of the department of computer engineering at Sharif University of Technology, where he is the founder and director of the Reliable and Durable IoT Applications & Networks Laboratory (RADIAN). Dr. Safaei received the ACM/SIGAPP student award at the 34th ACM/SIGAPP Symposium on Applied Computing (SAC'19). He is honored to be selected as a member of the national elites foundation from 2016 to 2020. He has served as the executive chair of the 28th CSI international computer conference. He is a member of the board of directors in the Cyber-Physical Systems Society of Iran (CPSSI). He is serving as an editor in Scientia Iranica Transactions on Computer Science & Engineering and Electrical Engineering. He has been a TPC member in ACM/IEEE DAC'19, and IEEE WF-IoT. Dr. Safaei has served as a reviewer in several prestigious international journals and conferences, such as IEEE Transactions on Mobile Computing, IEEE Transactions on Vehicular Technology, IEEE Transactions on Cloud Computing, IEEE Internet of Things Journal, IEEE Communications Magazine, ACM Transactions on Storage, ACM/IEEE DAC, IEEE Sensors Conference, IEEE ICC, and IEEE WF-IoT. His research interests include energy-efficiency and dependability challenges in Internet of Things, Networks, Wireless Sensor Networks, Mobile Ad-hoc Networks, Cloud/Edge/Fog computing, and Vehicular Ad-hoc Networks.

Education

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|------------------|---|
| 2016-2021 | Sharif University of Technology, Tehran, Iran.
Ph.D., Computer Engineering
Title: Energy-Aware Routing in Internet of Things |
| 2019-2020 | Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany.
Ph.D. sabbatical
Title: Resource Management in Embedded Systems and IoT |
| 2014-2016 | Sharif University of Technology, Tehran, Iran.
M.Sc., Computer Engineering,
Title: Fault Tolerance in Cloud Storage Systems Using Erasure Codes |
| 2010-2014 | Khaje-Nasir University of Technology, Tehran, Iran.
B.Sc., Computer Engineering, |

Professional Background

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| 2024 | Publicity chair of the 5 th CPSSI International Symposium on Cyber-Physical Systems (Applications and Theory) (CPSAT). |
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- 2023-Present** Editor of Scientia Iranica Transactions on Computer Science & Engineering and Electrical Engineering
- 2022-Present** IT manger, Department of Computer Science and Engineering, Sharif University of Technology
- 2022** Executive chair of the 28th CSI International Computer Conference
- 2021-Present** Assistant Professor, Department of Computer Science and Engineering, Sharif University of Technology
- 2021-Present** Director of the Reliable And Durable IoT Applications & Networks (RADIANT)
- 2021** TPC member in IEEE 7th World Forum on Internet of Things (WF-IoT)
- 2020-Present** Member of the board, Cyber-Physical Systems Society of Iran (CPSSI)
- 2019** TPC member in the 56th International Design Automation Conference (DAC'19)

Interests

Energy-Efficiency and Dependability Challenges in:

- ✓ Internet of Things (IoT)
- ✓ Networks
- ✓ Wireless Sensor Networks (WSN)
- ✓ Mobile Ad-hoc Networks (MANET)
- ✓ Edge Computing
- ✓ Fog Computing
- ✓ Cloud Computing
- ✓ Vehicular Ad-hoc Networks (VANET)

Honors and Awards

- 2024** Received the best paper award at the 5th CPSSI International Symposium on Cyber-Physical Systems (Applications and Theory) (CPSAT).
- 2024** Received the young professor award of Sharif University of Technology.
- 2023** Received the Dr. Kazemi Ashtiani award from national elites foundation.
- 2021** Received the Dr. Shahriari award from national elites foundation.
- 2020** Received full scholarship from Karlsruhe Institute of Technology (KIT) for conducting research as a visiting PhD researcher at the Chair for Embedded Systems (CES).
- 2019** Received the ACM/SIGAPP student award for presenting our paper in the 34th ACM/SIGAPP Symposium on Applied Computing (SAC).
- 2019** Elected as a member of national elites foundation.
- 2018** Elected as the premier Ph.D. researcher in the department of computer engineering at Sharif University of Technology.
- 2018** Elected as a member of national elites foundation.
- 2017** Elected as a member of national elites foundation.
- 2016** Nominated for receiving the best paper award at ICSEC 2016.
- 2016** Elected as a member of national elites foundation.
- 2014** Credited as a bright talent for pursuing the M.Sc. degree at Sharif University of Technology without the entrance exam.
- 2014** Ranked 3rd among all of the Hardware engineering B.Sc. students at K.N. Toosi University of Technology.





Publications (Journals)

- 2024 A. Motamedhashemi, **B. Safaei**, A. M. H. Monazzah, J. Henkel, A. Ejlali, "FUSION: A Fuzzy-based Multi-Objective Task Management for Fog Networks," *IEEE Access*, 2024.
- 2024 M. Farahani, M. A. Rashid, **B. Safaei**, "From Kernel to Cloud: A Concise Comparative Study of Practical IoT Operating Systems," *IEEE Internet of Things Magazine*, 2024.
- 2024 H. Taghizadeh, **B. Safaei**, A. M. H. Monazzah, E. Oustad, S. R. Lalani, A. Ejlali, "LANTERN: Learning-Based Routing Policy for Reliable Energy-Harvesting IoT Networks," *IEEE Transactions on Network and Service Management*, 2024.
- 2024 S. R. Lalani, **B. Safaei**, A. M. H. Monazzah, H. Taghizadeh, J. Henkel, A. Ejlali, "QUERA: Q-Learning RPL Routing Mechanism to Establish Energy Efficient and Reliable Communications in Mobile IoT Networks," *IEEE Transactions on Green Communications and Networking*, 2024.
- 2023 A. Motamedhashemi, **B. Safaei**, A. M. H. Monazzah, A. Ejlali, "DATA: Throughput and Deadline-Aware Genetic Approach for Task Scheduling in Fog Networks," *IEEE Embedded Systems Letters*, 2023.
- 2023 R. Siyadatzaeh, F. Mehrafrooz, M. Ansari, **B. Safaei**, M. Shafique, J. Henkel, A. Ejlali, "ReLIEF: A Reinforcement Learning-Based Real-Time Task Assignment Strategy in Emerging Fault-Tolerant Fog Computing," *IEEE Internet of Things Journal*, 2023.
- 2022 **B. Safaei**, H. Taghizadeh, A. M. H. Monazzah, K. Talaei, P. Sadeghi, A. Mohammadsalehi, J. Henkel, A. Ejlali "Introduction and Evaluation of Attachability for Mobile IoT Routing Protocols with Markov Chain Analysis," *IEEE Transactions on Network and Service Management*, 2022.
- 2022 B. Ranjbar, H. Alikhani, **B. Safaei**, A. Ejlali, A. Kumar, "Learning-Oriented QoS-and Drop-Aware Task Scheduling for Mixed-Criticality Systems," *Computers*, 2022.
- 2021 A. Mohammadsalehi, **B. Safaei**, A. M. Hosseini Monazzah, L. Bauer, J. Henkel, A. Ejlali, "ARMOR: A Reliable and Mobility-aware RPL for Mobile Internet of Things Infrastructures," *IEEE Internet of Things Journal*, 2021.
- 2021 R. Narimani, **B. Safaei**, A. Ejlali, "A Low-Waste Reliable Adiabatic Platform," *Computers & Electrical Engineering*, 2020.
- 2020 **B. Safaei**, A. M. Hosseini Monazzah, A. Ejlali, "ELITE: An Elaborated Cross-Layer RPL Objective Function to Achieve Energy Efficiency in Internet of Things Devices," *IEEE Internet of Things Journal*, 2020.
- 2020 **B. Safaei**, A. Mohammadsalehi, K. Talaei, S. Zarbaf, A. M. Hosseini Monazzah, F. Samie, L. Bauer, J. Henkel, A. Ejlali, "Impacts of Mobility Models on RPL-based Mobile IoT Infrastructures: An Evaluative Comparison and Survey," *IEEE Access*, 2020
- 2020 M. Jafari-Nodoushan, **B. Safaei**, A. Ejlali, "Leakage-Aware Battery Lifetime Analysis Using the Calculus of Variations," *IEEE Transactions on Circuits and Systems-I: Regular Papers (TCAS I)*, 2020.
- 2020 B. Ranjbar, **B. Safaei**, A. Ejlali, and A. Kumar, "FANTOM: Fault-Tolerant Task-Drop Aware Scheduling for Mixed-Criticality Systems," *IEEE Access*, 2020.
- 2020 R. Narimani, **B. Safaei**, A. Ejlali, "A Comprehensive Analysis on The Resilience of Adiabatic Logic Families Against Transient Faults," *Integration, The VLSI Journal*, 2020.
- 2019 A. Hoseinghorban, A. M. Hosseini Monazzah, M. Bazzaz, **B. Safaei**, A. Ejlali, "COACH: Consistency Aware Check-pointing for Nonvolatile Processor in Energy Harvesting Systems," *IEEE Transactions on Emerging Topics in Computing (TETC)*, 2019.
- 2019 **B. Safaei**, A. A. Mohammad Salehi, A. M. Hosseini Monazzah, A. Ejlali, "Effects of RPL Objective Functions on the Primitive Characteristics of Mobile and Static IoT Infrastructures," *Microprocessors and Microsystems (MICPRO)*, 2019.
- 2017 S. A. Chamazcoti, **B. Safaei**, S. G. Miremadi, "Can Erasure Codes Damage Reliability in SSD-





based Storage Systems?," *IEEE Transactions on Emerging Topics in Computing (TETC)*, 2017.

Publications (Conferences)

- 2024 Y. Seraj, S. Fadaei, **B. Safaei**, A. Javadi, A. M. H. Monazzah, A. M. A. Hemmatyar, "LIMO: Load-balanced Offloading with MAPE and Particle Swarm Optimization in Mobile Fog Networks," in *proceedings of the The 5th CPSSI International Symposium on Cyber-Physical Systems (Applications and Theory) (CPSAT)*, 2024.
- 2024 M. A. Zarkesh, E. Dastani, **B. Safaei**, A. Movaghar, "EdgeLinker: Practical Blockchain-based Framework for Healthcare Fog Applications to Enhance Security in Edge-IoT Data Communications," in *proceedings of the The 5th CPSSI International Symposium on Cyber-Physical Systems (Applications and Theory) (CPSAT)*, 2024.
- 2022 S.R. Lalani, **B. Safaei**, A. M. H. Monazzah, A. Ejlali, "PEARL: Power and Delay-Aware Learning-based Routing Policy for IoT Applications," in *proceedings of the CSI/CPSSI International Symposium on Real-Time and Embedded Systems and Technologies*, 2022.
- 2021 M. Shirbeigi, **B. Safaei**, A. Mohammadsalehi, A. M. Hosseini Monazzah, J. Henkel, and A. Ejlali, "A Cluster-based and Drop-aware Extension of RPL to Provide Reliability in IoT Applications," in *proceedings of the 15th IEEE Systems Conference (SysCon'21)*, Vancouver, Canada, April 15, 2021.
- 2020 S. R. Lalani, A. Mohammadsalehi, H. Taghizade, **B. Safaei**, A. M. Hosseini Monazzah, and A. Ejlali, "REFER: A Reliable and Energy-Efficient RPL for Mobile IoT Applications," in *proceedings of the CSI/CPSSI International Symposium on Real-Time and Embedded Systems and Technologies*, 2020.
- 2019 P. Sadeghi, **B. Safaei**, K. Talei, A. M. Hosseini Monazzah, and A. Ejlali, "Towards a Reliable Modulation and Encoding Scheme for Internet of Things Communications," in *proceedings of the 13th IEEE International Conference on Application of Information and Communication Technologies (AICT'19)*, Baku, Azerbaijan, October 23-25, 2019.
- 2019 **B. Safaei**, A. A. Mohammad Salehi, M. Shirbeigi, A. M. Hosseini Monazzah, and A. Ejlali, "PEDAL: Power-Delay Product Objective Function for Internet of Things Applications," in *proceedings of the 34th ACM/SIGAPP Symposium on Applied Computing (SAC'19)*, Limassol, Cyprus, April 8-12, 2019.
- 2019 M. Kamali, A. Arvandi, M. Ashtarayeh, **B. Safaei**, and A. M. Hosseini Monazzah, "A Novel LNA Circuit in the L Band with the Purpose of Increasing Gain in GSM & GPS in Wireless Multi-receiver Systems," in *Proceedings of the 2nd IEEE International Conference on Communication Engineering and Technology (IC CET'19)*, Nagoya, Japan, April 12-15, 2019.
- 2018 **B. Safaei**, A. M. Hosseini Monazzah, T. Shahroodi, and A. Ejlali, "Objective Function: A Key Contributor in Internet of Things Primitive Properties," in *Proceedings of the 2nd CSI International Symposium on Real-Time and Embedded Systems and Technologies (RTEST'18)*, Tehran, Iran, May 9-10, 2018.
- 2017 **B. Safaei**, A. M. Hosseini Monazzah, M. Barzegar Bafroei, and A. Ejlali, "Reliability side effects in internet of things application layer protocols," in *Proceedings of the 2nd IEEE International Conference on System Reliability and Safety (ICSRS'17)*, Milan, Italy, December 20-22, 2017.
- 2016 **B. Safaei**, S. G. Miremadi, and S. A. Chamazcoti, "Implicit effect of decoding time on fault tolerance in erasure coded cloud storage systems," in *proceedings of 20th IEEE International Computer Science and Engineering Conference (ICSEC'16)*, Chiang Mai, Thailand, December 14-17, 2016.
- 2016 S. A. Chamazcoti, **B. Safaei**, and S. G. Miremadi, "SOYA: SSD-based RAID Systems Reliability Simulator," in *proceedings of the International Conference on System reliability and Science (ICSRS'16)*, Paris, France, 2016.





Teaching Experience

Lectures:

- ✓ Networked Embedded Systems (NES), Sharif University of Technology (2023-Present)
- ✓ Embedded Systems & Internet of Things, Sharif University of Technology (2019-2020)
- ✓ Wireless Networks, Sharif University of Technology (2021-Present)
- ✓ Computer Simulation, Sharif University of Technology (2021-Present)
- ✓ Computer Networks Lab, Sharif University of Technology (2021-Present)
- ✓ Internet of Things Lab, Sharif university of Technology (2024-Present)

International Review Services

- ✓ IEEE Transactions on Emerging Topics in Computers (TETC)
- ✓ IEEE Transactions on Sustainable Computing (TSUSC)
- ✓ IEEE Transactions on Vehicular Technologies (TVT)
- ✓ IEEE Transactions on Mobile Computing (TMC)
- ✓ IEEE Transactions on Cloud Computing (TCC)
- ✓ IEEE Internet of Things Journal (IoTj)
- ✓ IEEE Communications Magazine
- ✓ Elsevier Microprocessor and Microsystems
- ✓ Elsevier Microelectronics Journal
- ✓ Springer Telecommunication Systems
- ✓ Design Automation Conference (DAC)
- ✓ IEEE International Conference on Communications (ICC)
- ✓ IEEE World Forum on Internet of Things (WF-IoT)
- ✓ IEEE International Conference on Computer Design (ICCD)
- ✓ International Symposium on Real-Time Distributed Computing (ISORC)
- ✓ IEEE Sensors Conference

