

Mohsen Ansari



Mohsen Ansari is currently an assistant professor of computer engineering at [Sharif University of Technology](#), Tehran, Iran. He received his Ph.D. degree in computer engineering from [Sharif University of Technology](#), Tehran, Iran, in 2021. He was a visiting researcher in the [Chair for Embedded Systems \(CES\)](#), [Karlsruhe Institute of Technology \(KIT\)](#), Germany, from 2019 to 2021. His research interests include cyber-physical systems and hybrid systems design.

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Experience and University Positions

- **Assistant Professor**, [Department of Computer Science and Engineering, Sharif University of Technology](#), Tehran, Iran, Apr. 2022- Present.
- **Member of the board**, [Cyber-Physical Systems Society of Iran](#), Dec. 2021- Present.
- **Postdoctoral Fellow**, [Department of Computer Science and Engineering, Sharif University of Technology](#), Tehran, Iran, Sep. 2021-Apr. 2022.
- **Visiting Researcher**, [The Chair for Embedded Systems, Karlsruhe Institute of Technology](#), Karlsruhe, Germany, Oct. 2019- Apr. 2021.
- **Group Leader**, [Embedded Systems Research Laboratory \(ESR-LAB\), Department of Computer Science and Engineering, Sharif University of Technology](#), Tehran, Iran, Sep. 2016- Apr. 2022.

Education

- **Oct. 2019 - Apr. 2021**
 - **Visiting Researcher**
 - [The Chair for Embedded Systems, Karlsruhe Institute of Technology](#), Karlsruhe, Germany.
 - **Advisor:** [Prof. Jörg Henkel](#)
- **Sep. 2016 - Sep. 2021**

- **Ph.D. in Computer Engineering**
- [Department of Computer Engineering, Sharif University of Technology](#),
Tehran, Iran.
- **Advisor:** [Dr. Alireza Ejlali](#)
- **GPA= 19.84/20**

- **Sep. 2014 - Aug. 2016**
 - **M.Sc. in Computer Engineering (Computer System Architecture)**
 - [Department of Computer Engineering, Sharif University of Technology](#),
Tehran, Iran.
 - **Advisor:** [Dr. Alireza Ejlali](#)
 - **GPA= 19.75/20**

- **Sep. 2010 - Aug. 2014**
 - **B.Sc. in Computer Engineering (Computer System Architecture)**
 - [Engineering Department, Shahed University](#), Tehran, Iran.
 - **Advisor:** [Dr. Naser Mohammadzadeh](#)
 - **GPA= 18.35/20**

Research Interests

- Cyber-Physical Systems Design
- Hybrid Systems Design
- Real-Time Embedded Systems Design
- Machine Learning for CPSs and Sensor Information Processing
- Thermal and Low Power Design of CPSs
- Dependability, Security and Privacy in CPS, IoT, and Mobile

Publications

Journal Papers:

1. **Mohsen Ansari**, Sepideh Safari, Nezam Rohbani, Alireza Ejlali, Bashir M Al-Hashimi, "Power-Efficient and Aging-Aware Primary/Backup Technique for Heterogeneous Embedded Systems," *IEEE Transactions on Sustainable Computing*, in press.
2. R. Siyadatzaheh, F. Mehrafrooz, M. Ansari, B. Safaei, M. Shafique, J. Henkel, and A. Ejlali, "ReLIEF: A Reinforcement Learning-Based Real-Time Task Assignment Strategy in Emerging Fault-Tolerant Fog Computing," in *IEEE Internet of Things Journal*, doi: 10.1109/JIOT.2023.3240007.
3. M. Ansari, S. Safari, H. Khdr, P. Gohari, J. Henkel, S. Hessabi, and A. Ejlali, "Power-Aware Checkpointing for Multicore Embedded Systems," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 33, no. 12, pp. 4410-4424, 1 Dec. 2022, doi: 10.1109/TPDS.2022.3188568.
4. S. Yari-Karin, R. Siyadatzaheh, M. Ansari, and A. Ejlali, "Passive Primary/Backup-based Scheduling for Simultaneous Power and Reliability Management on Heterogeneous Embedded Systems," in *IEEE Transactions on Sustainable Computing*, 2022, doi: 10.1109/TSUSC.2022.3186656.
5. Sepideh Safari, **Mohsen Ansari**, Heba Khdr, Pourya Gohari-Nazari, Sina Yari-Karin, Amir Yeganeh-Khaksar, Shaahin Hessabi, Alireza Ejlali, and Jörg Henkel, "A Survey of Fault-Tolerance Techniques for Embedded Systems from the Perspective of Power, Energy, and Thermal Issues," *IEEE Access*, in press.

6. **Mohsen Ansari**, Sepideh Safari, Sina Yari-Karin, Pourya Gohari-Nazari, Heba Khdr, Muhammad Shafique, Jörg Henkel, and Alireza Ejlali, "Thermal-Aware Standby-Sparing Technique in Heterogeneous Real-Time Embedded Systems," *IEEE Transactions on Emerging Topics in Computing (TETC)*, in press.
7. Sepideh Safari, Heba Khdr, Pourya Gohari-Nazari, **Mohsen Ansari**, Shaahin Hessabi, and Jörg Henkel, "TherMa-MiCs: Thermal-Aware Scheduling for Fault-Tolerant Mixed-Criticality Systems," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, in press.
8. **Mohsen Ansari**, Sina Yari-Karin, Sepideh Safari, and Alireza Ejlali, "Power Management to Meet Thermal Safe Power in Fault-Tolerant Embedded Systems," *TechRxiv*, 2021, doi:10.36227/techrxiv.14703192.v1.
9. Amir Yeganeh-Khaksar, **Mohsen Ansari**, Sepideh Safari, Sina Yari-Karin, and Alireza Ejlali, "Ring-DVFS: Reliability-Aware Reinforcement Learning-Based DVFS for Real-Time Embedded Systems," *IEEE Embedded Systems Letters (ESL)*, vol. 13, no. 3, pp. 146-149, September 2021.
10. Amir Yeganeh-Khaksar, **Mohsen Ansari**, and Alireza Ejlali, "ReMap: Reliability Management of Peak-Power-Aware Real-Time Embedded Systems through Task Replication," *IEEE Transactions on Emerging Topics in Computing (TETC)*, in Press.
11. **Mohsen Ansari**, Mohammad Salehi, Sepideh Safari, Alireza Ejlali, and Muhammad Shafique, "Peak-Power-Aware Primary-Backup Technique for Efficient Fault-Tolerance in Multicore Embedded Systems," *IEEE Access*, vol. 8, pp. 142843-142857, 2020.
12. Javad Saber-Latibari, **Mohsen Ansari**, Pourya Gohari-Nazari, Sina Yari-Karin, Amir Mahdi Hosseini Monazzah, and Alireza Ejlali, "READY: Reliability- and Deadline-Aware Power-Budgeting for Heterogeneous Multi-Core Systems," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 40, no. 4, pp. 646-654, April 2021.
13. **Mohsen Ansari**, Amir Yeganeh-Khaksar, Sepideh Safari, and Alireza Ejlali, "Peak-Power-Aware Energy Management for Periodic Real-Time Applications," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 39, no. 4, pp. 779-788, April 2020.
14. **Mohsen Ansari**, Javad Saber-Latibari, Mostafa Pasandideh, and Alireza Ejlali, "Simultaneous Management of Peak-Power and Reliability in Heterogeneous Multicore Embedded Systems," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 31, no. 3, pp. 623-633, 1 March 2020.
15. **Mohsen Ansari**, Mostafa Pasandideh, Javad Saber-Latibari, and Alireza Ejlali, "Meeting Thermal Safe Power in Fault-Tolerant Heterogeneous Embedded Systems," *IEEE Embedded Systems Letters (ESL)*, vol. 12, no. 1, pp. 29-32, March 2020.
16. **Mohsen Ansari**, Mostafa Pasandideh, and Alireza Ejlali, "Peak Power Management in Standby-Sparing Systems," *The CSI Journal on Computing Science and Information Technology*, In Press (in Persian).
17. Sepideh Safari, **Mohsen Ansari**, Ghazal Ershadi, and Shaahin Hessabi, "On the Scheduling of Energy-Aware Fault-Tolerant Mixed-Criticality Multicore Systems with Service Guarantee Exploration," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 30, no. 10, pp. 2338-2354, 1 Oct. 2019..
18. **Mohsen Ansari**, Sepideh Safari, Amir Yeganeh-Khaksar, Mohammad Salehi, and Alireza Ejlali, "Peak Power Management to Meet Thermal Design Power in Fault-Tolerant Embedded Systems," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 30, no. 1, pp. 161-173, 1 Jan. 2019.
19. Sepideh Safari, **Mohsen Ansari**, Mohammad Salehi, and Alireza Ejlali, "Energy-Budget-Aware Reliability Management in Multi-Core Embedded Systems with Hybrid Energy Source," *The CSI Journal on Computer Science and Engineering (JCSE)*, vol. 15, no. 2, pp. 31-43, 2018.
20. **Mohsen Ansari**, Sepideh Safari, Farimah R. Poursafaei, Mohammad Salehi, and Alireza Ejlali, "AdDQ: Low-Energy Hardware Replication for Real-Time Systems through Adaptive Dual Queue Scheduling," *The CSI Journal on Computer Science and Engineering (JCSE)*, vol. 15, no. 1, pp. 31-38, 2017.

Conference Papers:

1. **Mohsen Ansari**, Sepideh Safari, Amir Yeganeh-Khaksar, Roozbeh Syiadatzadeh, Pourya Gohari-Nazari, Heba Khdr, Muhammad Shafique, Jörg Henkel, and Alireza Ejlali "[ATLAS: Aging-Aware Task Replication for Multicore Safety-Critical Systems](#)," in *29th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS 2023)*, May 9-12, 2023.
2. F. Poursafaei, S. Safari, M. Ansari, A. Yeganeh-Khaksar, M. Salehi and A. Ejlali, "[Energy- and Reliability-Aware Task Replication in Safety-Critical Embedded Systems](#)," 2022 CPSSI 4th International Symposium on Real-Time and Embedded Systems and Technologies (RTEST), Tehran, Iran, Islamic Republic of, 2022, pp. 1-8, doi: 10.1109/RTEST56034.2022.9850176.
3. Sina Yari-Karin, Ali Sahraei, Javad Saber-Latibari, **Mohsen Ansari**, Nezam Rohbani, and Alireza Ejlali, "[A Comparative Study of Joint Power and Reliability Management Techniques in Multicore Embedded Systems](#)," *Proc. of the 3rd Int'l of the CSI Symposium on Real-Time and Embedded Systems and Technologies (RTEST)*, 2020.
4. Zahra Shirmohammadi, **Mohsen Ansari**, Sanaz Kazemi, Sepideh Safari and Seyed-Ghasem Miremadi, "[PAM: a Packet Manipulation Mechanism for Mitigating the Crosstalk Faults in NoCs](#)," *Proc. of the 13th IEEE Int'l Conference on Dependable, Autonomic and secure computing (DASC)*, Liverpool, England, October, 2015.
5. Farimah R.Poursafaei, Sepideh Safari, **Mohsen Ansari**, Mohammad Salehi, and Alireza Ejlali, "[Offline Replication and Online Energy Management for Hard Real-Time Multicore Systems](#)," *Proc. of the 1st Int'l of the CSI Symposium on Real-Time and Embedded Systems and Technologies (RTEST)*, Tehran, Iran, October, 2015.
6. Sepideh Safari, **Mohsen Ansari**, Zahra Shirmohammadi, and Seyed-Ghasem Miremadi, "[The effects of Error Correction and Detection Codes on The Reliability Improvement of NoCs against Crosstalk Faults](#)," *Proc. of the 7th Int'l Conference on Information and Knowledge Technology*, Urmia, Iran, May, 2015 (in Persian).

Professional Service

- Asia and South Pacific Design Automation Conference (ASP-DAC 2023-2024), Conference TPC Member.
- The CSI Journal on Computer Science and Engineering (JCSE), Associate Editor.
- IEEE Access, Reviewer.
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, Reviewer.
- IEEE Transactions on Very Large-Scale Integration (VLSI) Systems, Reviewer.
- IEEE Transactions on Sustainable Computing (TSUSC), Reviewer.
- ACM Transactions on Embedded Computing Systems (TECS), Reviewer.
- Reliability Engineering and System Safety (RESS), Elsevier, Reviewer.
- Microprocessors and Microsystems (MICPRO), Elsevier, Reviewer.
- Journal of Systems Architecture (JSA), Elsevier, Reviewer.
- Scientia Iranica - Journal - Elsevier, Reviewer.
- Journal of Circuits, Systems, and Computers (JCSC), Reviewer.
- The CSI Symposium on Real-Time and Embedded Systems and Technologies (RTEST2018), Reviewer.
- The CSI Symposium on Real-Time and Embedded Systems and Technologies (RTEST2015), Reviewer.

- **IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems**, Sub-Reviewer.
- **The CSI Journal on Computer Science and Engineering (JCSE)**, Sub-Reviewer.

Honors and Awards

- Received the outstanding young researcher award from Sharif University of Technology, 2023.
- Received the Dr. Shahriari award (Faculty Position) from national elites foundation of Iran, 2022.
- Received the Dr. Chamran award (Postdoctoral Position) from national elites foundation of Iran, 2021.
- Elected as a national talent, Iran, 2016-2021.
- Received full scholarship from Karlsruhe Institute of Technology (KIT) for conducting research as a visiting researcher at the Chair for Embedded Systems (CES) (2019-2021).
- Elected as the premier teacher assistant at Sharif University of Technology, 2017.
- Ranked 3rd among 1000 graduated Master's students at Sharif University of Technology, 2016.
- Ranked 2nd among 42 graduated Master's students in computer architecture, department of computer engineering, Sharif University of Technology, 2016.
- Admitted as an Exceptional Talented Student at Sharif University of Technology for M.Sc programs, 2014.
- Ranked 1st among 160 graduated Bachelor's students in engineering department at Shahed University, 2014.

Teaching Experience

- **Graduate**
 - System on Chip (Graduate), Sharif University of Technology, Department of Computer Science and Engineering, Spring 2023 and 2024.
 - Cyber-Physical Systems (Graduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2022 and 2023.
- **Undergraduate**
 - Embedded Systems (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, and Spring 2023.
 - Digital System Design Lab (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2022, Spring 2023, Summer 2023, Fall 2023, and Spring 2024.
 - Digital Logic Lab (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2022, Spring 2023, Summer 2023, Fall 2023, and Spring 2024.
 - Real-Time Computing (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Spring 2022.

- Numerical Methods (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Groups 1 & 2, Fall 2018.
- Numerical Methods (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2017.
- Digital Design (Logic Design) (Undergraduate), Sharif University of Technology, International Campus-Tehran, Fall 2017.