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 Istitute of Technology, Karlsruhe, Germany.
  - **Advisor:** Prof. Jörg Henkel
- **Sep. 2016 - Sep. 2021**

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

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

- **Sep. 2010 - Aug. 2014**
    - o **B.Sc. in Computer Engineering (Computer System Architecture)**
    - o [Engineering Department](#), [Shahed University](#), Tehran, Iran.
    - o **Advisor:** [Dr. Naser Mohammadzadeh](#)
    - o **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. R. Siyadatzadeh, 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.
2. 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.
3. S. Yari-Karin, R. Siyadatzadeh, 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.
4. 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.

5. **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 Hetereogeneous Real-Time Embedded Systems," *IEEE Transactions on Emerging Topics in Computing (TETC)*, in press.

6. 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.

7. **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.

8. 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.

9. 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.

10. **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.

11. 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.

12. **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.

13. **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.

14. **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.

15. **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).

16. 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..

17. **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.

18. 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.

19. **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. 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.

2. 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.

3. 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.

4. 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.

5. 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)**, 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

- Recieved the Dr. Shahriari award (Faculty Position) from national elites foundation of Iran, 2022.
- Recieved 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.
  - Cyber-Physical Systems (Graduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2022.
- **Undergraduate**
  - Embedded Systems (Undergraduate), Sharif University of Technology, Department of Computer Science and Engineering, Fall 2021, Spring 2022, Fall 2022, and Spring 2023.
  - 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.