## Mohammadreza Mehrabian

Electrical Engineering and Computer Science, South Dakota Schools of Mines and Technology, Rapid City, SD 57701

Website

**Google Scholar** 

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Strong research professional skilled in Embedded Systems, System Architecture, Logic Design, FPGA, Autonomous Systems (e.g., Connected Vehicles, Autonomous Intersections), Cyber-Physical Systems (CPS), Internet of Things (IoT), Runtime Verification, Temporal Logic, and Timing of Embedded Systems. Highly experienced in simulating and actual implementation of different mechanisms of autonomous systems and offline/online monitoring of their temporal specifications.

TEACHING EXPERIENCE		
Assistant Professor		
South Dakota School of Mines and Technology, Rapid City,	Aug 2022- present	
VISITING ASSISTANT PROFESSOR		
University of the Pacific, Stockton, CA		Aug 2021- Aug 2022
GRADUATE TEACHING ASSISTANT		
Arizona State University, Tempe, AZ		Jan 2016 – May 2021
EDUCATION		
Ph.D. in Computer Engineering		July 2021
Arizona State University, Tempe, AZ		
Master's in Computer Architecture		Oct 2011
Amirkabir University of Technology, Tehran, Iran		
Bachelor's in Computer Engineering Shahid Bahonar University of Kerman, Iran		May 2004
DESIGNED, DEVELOPED, AND TAUGHT COURSES & LABS		
• RISC Assembly	•	Electrical/Logic Circuits
Embedded Systems	•	Hardware Acceleration and FPGA Design
Digital Design	•	Computer Systems and Networks
Distributed Systems	•	Object-Oriented Programming
Computer Architecture and Organization	•	Introduction to Robotics
JOURNAL AND CONFERENCE EDITORIAL BOARD		
• Member of the Embedded Systems Letter (ESL) Edi	torial	Board
JOURNAL AND CONFERENCE REVIEWS		
• Transaction on Embedded Computing Systems (TEC	CS)	
• Transaction on Cyber-Physical Systems (TCPS)		
Systems & Control Letters		
• Embedded Systems Week (ESWEEK)		
• Frontiers in Robotics and AI		
• IEEE Frontiers in Education Conference (FIE)		

- Automation and Test in Europe (DATE)
- IEEE Embedded Systems Letters (ESL), Design Automation Conference (DAC)
- IEEE Transaction on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Intelligent Transportation Systems publication information (TITS)
- IEEE Transaction on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Intelligent Transportation Systems publication information (TITS)
- IEEE Embedded Systems Letters (ESL)
- Design Automation for Embedded Systems (DAEM)
- IEEE International Conference on Electro/Information Technology (IET)
- Field-Programmable Custom Computing Machines (FCCM)
- DATE Workshop on Autonomous Systems Design (ASD)
- International Conference on VLSI Design (VLSID)
- Transactions on Multi-Scale Computing Systems
- ACM-IEEE International Conference on Formal Methods and Models for System Design (Memocode)
- Transactions on Multi-Scale Computing Systems

## U.S. PATENTS \_

Khayatian, Mohammad, **Mohammadreza Mehrabian**, Harshith Allamsetti, Kai-Wei Liu, Po-Yu Huang, Chung-Wei Lin, and Aviral Shrivastava. "Systems and methods for cooperative driving of connected autonomous vehicles in smart cities using Responsibility-Sensitive Safety rules." U.S. Patent Application 17/696,450, filed October 27, 2022.

Khayatian, Mohammad, Aviral Shrivastava, **Mohammadreza Mehrabian**. "Systems and methods for intersection management of connected autonomous vehicles" - US Patent 11,269,330, 2022

## AWARDS AND HONORS\_

2023	The First Recipient of the SD Academy of Science Young Researchers Award
2023	SDM OFDA Course Improvement Microgrant
2020	ASU CIDSE Doctoral Fellowship.
2019	ASU Ferdinand A. Stanchi Fellowship.
2018	ASU University Graduate Fellowship.
2016	Richard Newton Young Fellow award, 53 <sup>rd</sup> DAC, 2016.
2011	Ranked third among 22 students of Amirkabir University 2009-2010.

## PUBLICATIONS\_

Mehrabian, Mohammadreza, Mohammad Khayatian, Aviral Shrivastava, Patricia Derler, and Hugo Andrade. "A run-time verification method with consideration of uncertainties for cyber-physical systems." Microprocessors and Microsystems (2023): 104890.

Khayatian, Mohammad, Mohammadreza Mehrabian, Harshith Allamsetti, Kai-Wei Liu, Po-Yu Huang, Chung-Wei Lin, and Aviral Shrivastava. "Cooperative driving of connected autonomous vehicles using responsibility-sensitive safety (RSS) rules." In Proceedings of the ACM/IEEE 12th International Conference on Cyber-Physical Systems, pp. 11-20. 2021.

Khayatian, Mohammad, Mohammadreza Mehrabian, Edward Andert, Reese Grimsley, Kyle Liang, Yi Hu, Ian McCormack et al. "Plan B: Design Methodology for Cyber-Physical Systems Robust to Timing Failures." ACM Transactions on Cyber-Physical Systems (TCPS) 6, no. 3 (2022): 1-39.

Khayatian Mohammad, Mohammadreza Mehrabian, Harshith Allamsetti, Kai-Wei Liu, Po-Yu Huang, Chung-Wei, and Aviral Shrivastava. "Cooperative Driving of Connected Autonomous Vehicles Using Responsibility-Sensitive Safety Rules". ICCPS 2021

Mehrabian, Mohammadreza. "A Methodology and Formalism to Handle Timing Uncertainties in Cyber-Physical Systems." PhD diss., Arizona State University, 2021.

Khayatian Mohammad, Mohammadreza Mehrabian, Edward Andert, Reese Grimsley, Kyle Liang, Eve Hu, Ian McCormack, Carlee Joe-Wong, Jonathan Aldrich, Bob Iannucci, and Aviral Shrivastava, "Plan B - Design Methodology for Cyber-Physical Systems Robust to Timing Failures", Transactions on Cyber-Physical Systems, Oct 2021.

Khayatian Mohammad, Mohammadreza Mehrabian, Lin Chung-Wei, Belta Calin, and Aviral Shrivastava, "Cooperative Driving of Connected Autonomous vehicle using Responsibility Sensitive Safety Rules: A Control Barrier Functions Approach", International Federation of Automation Control, Nov 2021.

Khayatian Mohammad, Mohammadreza Mehrabian, Edward Andert, Rachel Dedinsky, Sarthake Choudhary, Yingyan Lou, and Aviral Shirvastava. "A survey on intersection management of connected autonomous vehicles." ACM Transactions on Cyber-Physical Systems 4, no. 4 (2020): 1-27.

Khayatian Mohammad, Rachel Dedinsky, Sarthake Choudhary, Mohammadreza Mehrabian, and Aviral Shrivastava. "R 2 IM-Robust and Resilient Intersection Management of Connected Autonomous Vehicles." In 2020 IEEE 23rd International Conference on Intelligent Transportation Systems (ITSC), pp. 1-6. IEEE, 2020.

Khayatian Mohammad, Yingyan Lou, Mohammadreza Mehrabian, and Aviral Shrivastava. "Crossroads+: A Time-Aware Approach for Intersection Management of Connected Autonomous Vehicles." ACM Transactions on Cyber-Physical Systems 1, no. 1 (2019).

Dedinsky Rachel, Mohammad Khayatian, Mohammadreza Mehrabian, and Aviral Shrivastava. "A Dependable Detection Mechanism for Intersection Management of Connected Autonomous Vehicles (Interactive Presentation)." In Workshop on Autonomous Systems Design (ASD 2019). Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik, 2019.

Khayatian Mohammad, Mohammadreza Mehrabian, and Aviral Shrivastava. "RIM: Robust Intersection Management for Connected Autonomous Vehicles." In 2018 IEEE Real-Time Systems Symposium (RTSS), pp. 35-44. IEEE, 2018.

JW van de Lindt, John W., Bruce Ellingwood, Paolo Gardoni, Daniel Cox, Therese P. McAllister, Ian B. Spielman, Francisco Salces Carcoba, Mohammadreza Mehrabian et al. "MODELING COMMUNITY RESILIENCE TO EARTHQUAKES AND TSUNAMIS: AN OVERVIEW OF THE CENTER FOR RISK-BASED COM-MUNITY RESILIENCE PLANNING." (2018).

Mehrabian, Mohammadreza, Mohammad Khayatian, Ahmed Mousa, Aviral Shrivastava, Patricia Derler, YaShian Li-Baboud, Dhananjay Anand, Edward R. Griffor, Hugo Andrade, and John Eidson. "TMA: An Efficient Timestamp-Based Monitoring Approach to Test Timing Constraints of Cyber-Physical Systems." In Design Automation Conference. 2018.

Mehrabian Mohammadreza, Mohammad Khayatian, Aviral Shrivastava, John C. Eidson, Patricia Derler, Hugo A. Andrade, Ya-Shian Li-Baboud, Edward Griffor, Marc Weiss, and Kevin Stanton. "Timestamp Temporal

Logic (TTL) for testing the timing of cyber-physical systems." ACM Transactions on Embedded Computing Systems (TECS) 16, no. 5s (2017): 169.

Shrivastava, Aviral, Mohammadreza Mehrabian, Mohammad Khayatian, Patricia Derler, Hugo Andrade, Kevin Stanton, Ya-Shian Li-Baboud, Edward Griffor, Marc Weiss, and John Eidson. "A Testbed to Verify the Timing Behavior of Cyber-Physical Systems." In Proceedings of the 54th Annual Design Automation Conference 2017, p. 69. ACM, 2017.

Mehrabian Mohammadreza, S. Pour Mozafari, B Zolfaghari "An Approach to Exploiting Proper Multiples of the Generator Polynomial in Parallel CRC Computation", 2012 IEEE International Conference on Computer Science and Automation Engineering, pp: 614 – 617, May 25-27, 2012, Zhangjiajie, China

Zoraghchian, M.Didehban, MohammadReza Mehrabian, "A Fault Detection Method for Combinational Circuits", 2011 International Conference on Opto-Electronics Engineering and Information Science (ICOEIS 2011) 23-25, December, 2011 Xi'an, China.