

Sadra Sadraddini

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EDUCATION *Doctor of Philosophy, Mechanical Engineering*
Boston University, Boston, MA, 2013-present
Advisor: Calin Belta
Current GPA: 3.97/4

Bachelor of Science, Mechanical Engineering
Bachelor of Science, Aerospace Engineering (Dual Major Program)
Sharif University of Technology, Tehran, Iran, 2009-2013
Project Advisor: Mir Abbas Jalali
Cumulative GPA: 17.47/20

Research and Development Interests The central theme in my research is bridging the gap between formal methods and control theory. I develop methods to design controllers that are correct-by-design, optimal, efficiently computed and easily implemented. Applications include a broad range of cyber-physical systems, with a particular focus on transportation management, autonomous vehicles, and robotics.

Publications

Journals

- J3. **Sadra Sadraddini**, Calin Belta, *Robust Control from Signal Temporal Logic Specifications*, (**In Preparation**)
- J2. **Sadra Sadraddini**, Sivaranjani S, Vijay Gupta, Calin Belta, *Provably Safe Cruise Control of Vehicular Platoons*, IEEE Controls Systems Letters
- J1. **Sadra Sadraddini**, Calin Belta, *Formal Synthesis of Control Strategies for Positive Monotone Systems*, IEEE Transactions on Automatic Control (**Conditionally Accepted**)

Peer-Reviewed Conference Proceedings

- C11. **Sadra Sadraddini**, Calin Belta, *Formal Guarantees in Data-Driven Control Synthesis*, (**In Preparation**)
- C10. **Sadra Sadraddini**, Calin Belta, *Distributed Robust Set-Invariance for Interconnected Linear Systems*, American Control Conference (ACC), Milwaukee, WI, 2018 (**Submitted**)

- C9. Eric S. Kim, **Sadra Sadraddini**, Calin Belta, Murat Arcak, Sanjit Seshia, *Dynamic Contracts for Distributed Temporal Logic Control of Traffic Networks*, IEEE Conference on Control and Decision (CDC), Melbourne, Australia, 2017 (**Accepted**)
- C8. **Sadra Sadraddini**, Calin Belta, *Formal Methods for Adaptive Control of Dynamical Systems*, IEEE Conference on Control and Decision (CDC), Melbourne, Australia, 2017 (**Accepted**)
- C7. **Sadra Sadraddini**, Janos Rudan, Calin Belta, *Formal Synthesis of Distributed Optimal Traffic Control Policies*, International Conference on Cyber-Physical Systems (ICCPS), Pittsburgh, PA, 2017
- C6. Sivaranjani S, **Sadra Sadraddini**, Vijay Gupta, Calin Belta, *Distributed Control Policies for Localization of Large Disturbances in Urban Traffic Networks*, American Control Conference (ACC), Seattle, WA, 2017
- C5. **Sadra Sadraddini**, Calin Belta, *Feasibility Envelopes for Metric Temporal Logic Specifications*, IEEE Conference on Control and Decision (CDC), Las Vegas, NV, 2016
- C4. Iman Haghghi, **Sadra Sadraddini**, Calin Belta, *Robotic Swarm Control From Spatio-Temporal Specifications*, IEEE Conference on Control and Decision (CDC), Las Vegas, NV, 2016
- C3. **Sadra Sadraddini**, Calin Belta, *Safety Control of Monotone Systems with Bounded Uncertainties*, IEEE Conference on Control and Decision (CDC), Las Vegas, NV, 2016
- C2. **Sadra Sadraddini**, Calin Belta, *A Provably Correct MPC Approach to Safety Control of Urban Traffic Networks*, American Control Conference (ACC), Boston, MA, 2016
- C1. **Sadra Sadraddini**, Calin Belta, *Robust Temporal Logic Model Predictive Control*, 53rd Annual Allerton Conference on Communication, Control, and Computing, Urbana, IL, 2015

Posters and Invited Talks

- P3. Sadra Sadraddini, Calin Belta, *Distributed Robust Set-Invariance for Linear Interconnected Systems*, The 2nd Symposium on the Control of Network Systems (SCONES), Boston, MA, 2017
- P2. Sadra Sadraddini, Calin Belta, *Controlled Invariance for Uncertain Positive Monotone Systems* (Invited session extended abstract), 22nd Symposium on Mathematical Theory of Networks and Systems, Minneapolis, MN, 2016
- P1. Sadra Sadraddini, Calin Belta, *Model Predictive Control of Urban Traffic Networks with Temporal Logic Constraints* (Tutorial Session Invited Talk), American Control Conference (ACC), Boston, MA, 2016 (**Accepted**)

Professional Experience

- Graduate Research Assistant, Hybrid and Networked Systems Lab, Boston University, Boston, MA, May 2014-Present
- Internship, Marine Engineering Lab., Sharif University of Technology, Tehran, Iran, Summer 2013
- Internship, Poladish Manufacturing Group, Tabriz, Iran, Summer 2012

Teaching Experience

- Teaching Assistant, Boston University, Boston, MA, Sep 2013-May 2014 and Summer 2016
 - Linear Algebra (College of Eng.)
 - Dynamics and Lab. (Department of Mech. Eng.)
- Teaching Assistant, Sharif University of Technology, Tehran, Iran, Sep 2012-May 2013
 - Flight Dynamics (Department of Aero. Eng.)
 - Mechanics of Materials Lab. (Department of Mech. Eng.)
 - Numerical Computations (Department of Mech. Eng.)
- Tutor for Physics and Astronomy Olympiad at Many High Schools in Tabriz, Tehran, and Kerman, Iran, 2007-2013

Honors and Awards

- Teaching Fellowship, Boston University, Department of Mechanical Engineering, Sep 2013-May 2014
- Fellowship, as a member of Iran's National Elites Foundation (INEF), 2008-2012, Iran
- Gold Medal, 2nd International Olympiad on Astronomy and Astrophysics, Bandung, Indonesia, 2008 (also the winner of *the best in theoretical competition award* and *the most creative solution in data analysis competition award*)
- Silver Medal, National Physics Olympiad, Iran, 2007
- Diploma III, 11th International Astronomy Olympiad, Mumbai, India, 2006
- Gold Medal, National Astronomy Olympiad, Iran, 2006
- Silver Medal, National Astronomy Olympiad, Iran, 2005

Review Responsibilities

- Journals
 - Automatica
 - IEEE Transactions on Automatic Control
 - IEEE Transactions on Robotics
 - IEEE Transactions on Aerospace and Electronic Systems
- Peer-Reviewed Conferences
 - IEEE conference on Decision and Control (CDC)

- American Control Conference (ACC)
- Hybrids Systems Computation and Control (HSCC)
- International Conference on Robotics and Automation (ICRA)
- Workshop on the algorithmic foundations of robotics (WAFR)
- Robotics Science and Systems (RSS)
- Workshop on Distributed Estimation and Control in Networked Systems (NecSys)

SKILLS

Programming: Python (preferred), C++, MATLAB

Operating Systems: Mac OS (preferred), Windows, Linux

Software/Tools: Git, L^AT_EX, Microsoft Office, Arduino, Processing, Solid-Works, AutoCAD

Language Proficiency: Azerbaijani, Persian (Native) English, Turkish (Fluent)

References upon request

Last updated on 26 September 2017