AQUIB MUSTAFA

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Education

2018 – till date
PhD, Mechanical Engineering
Michigan State University
Advisor: Dr. Hamidreza Modares
Specialization: Dynamics Systems and Controls

2017 – 2018
PhD, Electrical and Computer Engineering (Transferred)
Missouri University of Science and Technology, Rolla, USA
Advisor: Dr. Hamidreza Modares
Specialization: Control Systems

2014 – 2016
Master of Technology in Electrical Engineering
Indian Institute of Technology, Kanpur, India
Specialization: Control and Automation

Research Interest

- Reinforcement Learning for Feedback Control.
- Safe Control Design.
- Resilient Control of Cyber-physical Systems.
- Formal Methods-based Control.
- Distributed Estimation and Control.

Journal Papers (Accepted)

1. **A. Mustafa**, H .Modares and R. Moghadam, "Resilient Synchronization of Distributed Multi-agent Systems under Attacks", *Automatica*, vol. 115, 2020.
2. **A. Mustafa**, and H. Modares, "Attack Analysis and Resilient Control Design for Discrete-time Distributed Multi-agent Systems", *IEEE Robotics and Automation Letters*, vol. 5, no. 2, pp. 369-376, 2020.
3. **A. Mustafa**, B. Poudel, A. Bidram and H. Modares, "Detection and Mitigation of Data Manipulation Attacks in AC Microgrids", *IEEE Transaction on Smart Grid*, 2019.
4. **A. Mustafa**, N. K. Dhar, and N.K. Verma "Event-Triggered Sliding Mode Control for Trajectory Tracking of Nonlinear Systems," *IEEE Journal of Automatica Sinica*, vol. 7, no. 1, pp. 307-314, 2019.
5. B. Poudel, **A. Mustafa**, A. Bidram and H. Modares, "Detection and Mitigation of Cyber-threats in the DC Microgrid Distributed Control System", *International Journal of Electrical Power and Energy Systems*, vol. 120, 2020.

Journal Papers (Under Review)

1. **A. Mustafa**, M. Mazouchi, H. Modares and S.P. Nageshrao, "Assured Learning-enabled Autonomy: A Metacognitive Reinforcement Learning Framework", *IEEE Transaction on Neural Networks and Learning systems.*

2. **A. Mustafa**, M. Mazouchi and H. Modares, "Secure Event-Triggered Distributed Kalman Filters for State Estimation", *IEEE Transactions on Systems, Man and Cybernetics: Systems.*

3. M. Mazouchi, **A. Mustafa**, H. Modares, C. G. Panayiotou, and M. M. Polycarpou, "Performance Analysis of Event-Triggered Consensus Control for Multi-agent Systems under Cyber-Physical Attacks", *IEEE Control System Letters.*

Conference Papers

1. **A. Mustafa**, and H. Modares, "Attack Analysis for Discrete-time Distributed Multi-Agent Systems", Accepted for publication in 57^{th} *Annual Allerton Conference on Communication, Control, and Computing (Allerton),* pp. 230-237, 2019.

2. **A. Mustafa**, and H. Modares, "Analysis and Detection of Cyber-physical Attacks in Distributed Sensor Networks", 56^{th} *Annual Allerton Conference on Communication, Control, and Computing (Allerton),* pp. 973-980, 2018.

3. M. R. Hajidavalloo, **A. Mustafa**, and H. Modares, "Data-based Estimation of the Region of Attraction for Uncertain Nonlinear Systems", 4^{th} *IEEE Conference on Control Technology and Applications, CCTA-2020,* (Under review).

4. **A. Mustafa**, P. Agarwal, N. K. Dhar, N.K. Verma "Adaptive Backstepping Sliding Mode Control based on Nonlinear Disturbance Observer for Trajectory Tracking of Robotic Manipulator," *IEEE International Conference on Control and Robotics Engineering, ICCRE*, pp. 29-34, 2017.

5. **A. Mustafa**, Chirag Tyagi and N.K. Verma , "Inverse Kinematics evaluation for Robotic Manipulator using Support Vector Regression and Kohonen Self Organizing Map", *IEEE International conference on Industrial and Information Systems (ICIIS)*, pp. 375-380, 2016.

6. N.K. Verma, **A. Mustafa** and Al Salour,"Stereo-Vision based Object Grasping using Robotic Manipulator", *IEEE International conference on Industrial and Information Systems (ICIIS)*, pp. 95-100, 2016.

7. N. K. Verma, **A. Mustafa**, V. Sarraf and Al salour, "SURF-MSER based 3D Mapping using RGB-D Camera on Automated Vehicle" , *In Computational Intelligence: Theories, Applications and Future Directions-Volume II*, pp. 373-386, Springer, Singapore, 2018.

Teaching Experience

1. Graduate Teaching Assistant for ME-391 in Spring 2019, Fall 2020 and Spring 2020 at Michigan State University, USA.

2. Graduate Teaching Assistant (Control System Lab) in Spring 2018 at Missouri University of Science and Technology, USA.

3. Teaching Assistant (Undergrad Control System Course) in Fall 2017 and Spring 2018 at Missouri University of Science and Technology, USA.

4. Lab Instructor in EE380 (Control System Lab) during August-November 2014 and in ESO203 (Basics of Electrical Engineering lab) during January-April 2016, Indian Institute of Technology Kanpur (IIT-K), Kanpur, India.

5. Teaching Assistant in EE671 (Instrumentation and Control course) during August-November 2015, Indian Institute of Technology Kanpur (IIT-K), Kanpur, India.