

**When:** Friday 12:40 – 13:40

**Where:** WERC 236C

**Speaker:** Mahdi Imani

Department of Electrical & Computer Engineering  
Texas A&M University



**Title:** Estimation, Inference and Learning in Nonlinear State-Space Models

**Date:** 5-3-2019

**Abstract:** Demand for learning and decision making is higher than ever before. For instance, autonomous vehicles need to learn how to ride safely by recognizing pedestrians, traffic signs, and other cars, or in cyber-physical systems, one needs to process a large amount of data for proper learning and decision making, while avoiding severe impacts of unintentional faults or malicious attacks. Despite several advances made in learning and decision making in recent years, the ethical, economic and physical constraints often avoid the applicability of the existing techniques in many practical problems.

This talk will cover three main topics: 1) large-scale inference/learning in state-space models using Bayesian optimization framework, 2) brief overviews about the reinforcement learning and its challenges in dealing with practical problems with limited interactions, and 3) a brief overview about the new advances in estimation and inference of class of state-space models with Boolean state variables called partially-observed Boolean dynamical systems.

**Bio:** Mahdi Imani will join the Department of Electrical and Computer Engineering at George Washington University as an Assistant Professor in Fall 2019. He will receive his Ph.D. degree in May 2019 from the Department of Electrical and Computer Engineering at Texas A&M University, College Station, TX. He received his B.Sc. degree in Mechanical Engineering and his M.Sc. degree in Electrical Engineering, both from University of Tehran in 2012 and 2014. His research areas include machine learning, control theory and signal processing. He is the recipient of the Association of Former Students Distinguished Graduate Student Award for Excellence in Research-Doctoral in 2019, the Best PhD Student Award in ECE department at Texas A&M University in 2015, and a single finalist nominee of ECE department for the Outstanding Graduate Student Award in college of engineering at Texas A&M University in 2018. He is also a recipient of the best paper finalist award from the 49th Asilomar Conference on Signals, Systems, and Computers, 2015.