Bayesian Decision Making and Learning in Complex Uncertain Systems

سخنران:

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دانشگاه صنعتی شریف

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 focus on two main issues that the existing machine learning or engineering tools often face in practice, which are lack of reliability and lack of scalability. In particular, the main focus of the talk will be around large-scale inference/learning using Bayesian optimization framework, as well as brief overviews about the reinforcement learning and its challenges in dealing with practical problems, and dynamical modeling of large-scale component-wise systems.

About Speaker:

Mahdi Imani, Assistant Professor at the Department of Electrical and Computer Engineering at George Washington University, received his Ph.D. degree in 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 recipient of the Association of Former Students Distinguished Graduate Student Award for Excellence in Research-Doctoral in 2019, a single finalist nominee of ECE department for the Outstanding Graduate Student Award in college of engineering at Texas A&M university in 2018, and the Best PhD Student Award in ECE department at Texas A&M university in 2015. He is also recipient of the best paper finalist award from the 49th Asilomar Conference on Signals, Systems, and Computers, 2015.