Colloquium

Department of Computer Science

Dr. Bardh Hoxha

Bardh is a PhD candidate in Computer Science at Arizona State University. He is a member of the Cyber-Physical Systems lab at ASU. His main research interests include formal methods, testing and verification of Cyber-Physical Systems, logic, motion planning for autonomous vehicles, and human-robot interaction. He received his Masters degree in Mathematics from Central Connecticut State University and a Bachelors degree in Computer Science from New York Institute of Technology. He was finalist for the best student paper award at CYBER 2014. In 2016 and 2017, he served as a program committee member for repeatability evaluation for the ACM International Conference on Hybrid Systems: Computation and Control.

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1:00 PM
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Formal Requirements-Driven Analysis of Cyber-Physical Systems

Abstract

Modern society relies on the safe operation of Cyber-Physical Systems such as medical devices, modern aircraft, and automotive systems. Testing and verification of these systems to ensure safe operation is a challenging problem. The challenge arises as a result of the complex interactions between the components of these systems: the digital control, and the physical environment. Furthermore, the software complexity that governs the high-level control logic in these systems is increasing day by day.

In this talk, we will provide an overview of testing and verification methods for Cyber-Physical Systems. We will focus on simulation-based methods for functional testing of systems with respect to formal requirements. Finally, we will present the topic of parameter mining for temporal logic specifications. Our high-level goal is to explore and infer properties that a system satisfies through system simulation.