

## Fall 2016 Seminar Series

### DESIGN ENGINEERING TO OVERCOME UNWANTED REPLACEMENT (DETOUR)

FRIDAY, September 9, 2016 • 2:00PM – HEC 438

Counterfeiting of integrated circuits (ICs) is a rising issue that has a huge economic impact on the electronics industry. With the electronic component supply chain growing more complex due to globalization, with parts coming from a diverse set of suppliers, counterfeit electronics have become a major challenge. Given the critical engineering application that incorporate ICs, such a growth in supply chain in complexity has led to serious security threats due to potential of insertion of counterfeit hardware components.

In this talk, we propose a novel game-theoretic framework to analyze the interactions between a hardware supplier (attacker), and the IC component testing site of a company (defender). The problem is formulated as a non-cooperative game in which the attacker is taking into account the possible financial repercussion from being detected. We also explore the use of Machine Learning (ML), Optimization and Fault tolerance to overcome unwanted hardware components replacement (DETOUR).

**DR. LAURENT Y. NJILLA**  
Research Electronics Engineer

Laurent L. Njilla received his B.S. in Computer Science from the University of Yaoundé 1 in Cameroon, the M.S. in Computer Engineering from the University of Central Florida and Ph.D. in Electrical Engineering from Florida International University. He joined the Cyber Assurance Branch of the U.S. Air Force Research Laboratory (AFRL), Rome, New York, as a Research Electronics Engineer in 2015. Prior to joining AFRL, he was a Senior Systems Analyst in the industry sector for more than 10 years. His current research interests cover Category Theory, the application of game theory, Machine Learning, mechanism design to cyber security and Information threat sharing.

*Hosted by: Dr. Mainak Chattejee*

