Analog and Mixed-Signal Center
3128 TAMU
College Station, TX 77843-3128

Tel. (979) 845-7498
Fax. (979) 845-7161
E-mail:s-sanchez@tamu.edu

ELECTRICAL & COMPUTER ENGINEERING
TEXAS A&M UNIVERSITY

S E M I N A R

Room 1035 ETB

April 2, 2018, 1:50 – 2:50 P.M.

Towards provably-secure logic locking

by

Jeyavijayan V. Rajendran
Texas A&M University

Abstract: The increasing cost of IC manufacturing has forced many companies to go fabless over the years. With the outsourcing of IC fabrication in a globalized/distributed design flow including multiple (potentially untrusted) entities, the semiconductor industry is facing a number of challenging security threats. This fragility in the face of poor state-of-the-art intellectual property (IP) protection has resulted in hardware security vulnerabilities such as IP piracy, overbuilding, reverse engineering, and hardware Trojans. In this talk, I will present logic locking, a technique that has been conceived as a promising proactive defense strategy against the above-mentioned attacks. I will describe the security properties, known attacks, and our provably-secure solution. Additionally, I will also describe my other research projects on hardware security. Finally, I will present my research vision on developing end-to-end tool suite for hardware security.

JV Rajendran is an Assistant Professor in the Department of Electrical and Computer Engineering at the Texas A&M University. Previously, he was an Assistant Professor at UT Dallas between 2015 and 2017. He obtained his Ph.D. degree in the Electrical and Computer Engineering Department at New York University in August 2015. His research interests include hardware security and emerging technologies.

His research has won the NSF CAREER Award in 2017, the ACM SIGDA Outstanding Ph.D. Dissertation Award in 2017, and the Alexander Hessel Award for the Best Ph.D. Dissertation in the Electrical and Computer Engineering Department at NYU in 2016. He has won three Student Paper Awards (ACM CCS 2013, IEEE DFTS 2013, and IEEE VLSI Design 2012); four ACM Student Research Competition Awards (DAC 2012, ICCAD 2013, DAC 2014, and the Grand Finals 2013); Service Recognition Award from Intel; Third place at Kaspersky American Cup, 2011; and Myron M. Rosenthal Award for Best Academic Performance in M.S. from NYU, 2011. He organizes the annual Embedded Security Challenge, a red-team/blue-team hardware security competition and has co-founded Hack@DAC, a student security competition co-located with DAC, and FOSTER. He is a member of IEEE and ACM.