



Centre of Excellence for Cyber Systems and Information Assurance, IIT Delhi

Talk on **Security and Safety of Embedded Systems: From Integrated Circuits to Impaired Driving**

by



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Abstract:

Security and Safety of Embedded Systems is critical to the operation of various elements of our quotidian life. In this talk, I will present our research at UMBC on two security and safety applications that involves embedded systems – security in Integrated Circuits and Safety in Vehicular Systems. Specifically, I will discuss a CAD framework that provides an efficient pre-fabrication method for determining Golden Signatures for ICs and preliminary results from a multi-vantage power supply monitoring system that can help localize the circuit in an IC that is under attack. I will also present results on our textile capacitive sensor system that can be embedded into car seats, doormats, and gas and brake pedals, to monitor whole body movements of drivers and infer instances of impaired driving. The system, *distratto*, can help mitigate accidents by capturing attributes of distracted and impaired driving.

Bio:

Nilanjan Banerjee is an Assistant Professor in Computer Science and Electrical Engineering at University of Maryland Baltimore County. He is a 2011 NSF Career Awardee, a 2013 Microsoft Research Software Engineering Innovations (SEIF) Awardee, and has received a Yahoo! Outstanding Dissertation Award. His research expertise is in software embedded and sensor systems. He has published in top Computer Science conferences such as Mobisys, Mobicom, Ubicomp, CoNext, Pervasive, RTSS, BuildSys, and PerCom, top CE conferences such as Sensors and DATE, and top journals such as Transactions on GIS, Journal of Nanotechnology in Engineering and Medicine, Applied Soft Computing, and Transactions on Networking.

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