STATISTICAL MODELING: FROM VLSI CAD TO BRAIN IMAGING

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ABSTRACT: This talk presents several novel modeling methodologies (e.g., sparse regression, Bayesian model fusion, etc.) for complex systems. We will discuss how the proposed modeling techniques are applied to adaptive post-silicon tuning of analog and mixed-signal circuits. In addition, our algorithms originally developed for VLSI CAD problems have been successfully extended to other non-CAD applications. The second part of this talk briefly discusses a clinical application of brain computer interface based on magnetoencephalography (MEG). The objective of BCI is to provide a direct control pathway from brain to external devices. We will show how statistical modeling algorithms can be applied to improve the signal-to-noise ratio of MEG recording.

BIOGRAPHY: Xin Li received the Ph.D. degree in Electrical & Computer Engineering from Carnegie Mellon University in 2005. He is currently an Associate Professor in the ECE Department at Carnegie Mellon. His research interests include integrated circuit and signal processing. Dr. Li received the NSF CAREER Award in 2012, the IEEE Donald O. Pederson Best Paper Award in 2013, the DAC Best Paper Award in 2010, two ICCAD Best Paper Awards in 2004 and 2011, and the ISIC Best Paper Award in 2014.