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Invitation to a talk

Title: Statistical Inference in CAD for Deeply Scaled CMOS Technologies

Presenter: Prof. Ibrahim (Abe) M. Elfadel,
Institute Center for Microsystems, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates

Time, place: Friday, February 20, 2015, 11:00am, room 4905
https://portal.mytum.de/campus/roomfinder/search_room_results?searchstring=4905&building=0509&search=Suche+starten

Abstract:

We survey our recent work (ASP-DAC 2013, DAC 2014, DATE 2013, 2014, and 2015) in applying statistical inference techniques in the context of variation-aware computer-aided design for deeply scaled CMOS technologies. These techniques are able to overcome specific limitations in the existing methods used for statistical compact modeling, circuit performance estimation, and standard library characterization. In all these instances, statistical inference methods are shown to provide the same level of predictive accuracy as existing methods at a much-reduced cost in either simulation runs or post-silicon measurements. Throughout the seminar we stress the key role of validated ultra-compact representations of transistor-level or cell-level behavior in facilitating the formulation and benchmarking of statistical inference CAD algorithms.

Bio:

Ibrahim (Abe) M. Elfadel is Professor of Electrical Engineering and Computer Science at the Masdar Institute of Science and Technology, Abu Dhabi, UAE. He currently heads the Masdar Institute Center for Microsystems (iMicro), a leading semiconductor research organization in the UAE, totaling more than $20 million dollars in corporate-sponsored research. Since joining the Masdar Institute (MI) in late 2010, he has played a leading role in establishing deep collaborative partnerships with world-renowned semiconductor research organizations, including the Semiconductor Research Corporation (US), Technical University of Dresden (Germany) and the Institute for Microelectronics (Singapore), that have among them more than 40 research projects spanning the areas of energy-efficient electronic systems, 3D IC's, and MEMS. His leadership positions include the founding co-director of the Abu Dhabi SRC Center of Excellence on Energy-Efficient Electronic Systems (ACE4S), the only SRC research center outside the US. Prior to joining MI, Dr. Elfadel had a 14-year career with the corporate CAD organizations at IBM Research and the IBM Systems and Technology Group, Yorktown Heights, NY, where he was involved in the research, development, and deployment of CAD tools and methodologies for IBM's high-end microprocessors. Dr. Elfadel is the recipient of six Invention Achievement Awards, one Outstanding Technical Achievement Award and one Research Division Award, all from IBM, for his contributions to VLSI CAD. He is inventor or co-inventor of 50 issued patents with several others pending and is the co-recipient of the 2014 Donald O. Pederson Best Paper Award from the IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems. Dr. Elfadel served as Associate Editor of the IEEE Transactions on Computer-Aided Design between 2009 and 2013. He is currently serving as Associate Editor for the IEEE Transactions on VLSI Systems and for the Microelectronics Journal (Elsevier). He received his PhD from MIT in 1993.