



*The Computer Engineering Research Center*  
*Mixed-Signal/RF Integrated Circuits Seminar Series*

## Analog/RF Circuits for High-Speed Communications

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### Abstract

The analog/RF front-ends for wired and wireless communication systems continue to set the performance of such systems. In particular, portable wireless solutions require high performance designs in compact form factors and low power consumption. While wired communication systems continue to push the operating speed envelope. In this talk we will provide an overview of some of the analog/RF circuit designs developed at the University of Minnesota. In particular, we describe some recent developments in high-speed low phase noise large tuning range VCOs, high linearity RF front-ends and high-SFDR data converters. The talk will provide an overview of both recent and ongoing research results.

### Biography

Dr. Ramesh Harjani is an Associate Professor in the Department of Electrical Engineering and a member of the graduate faculty of the Department of Biomedical Engineering at the University of Minnesota. He received his Ph.D. in Electrical Engineering from the Carnegie Mellon University in 1989. He co-founded Bermai, Inc, a startup company developing CMOS chips for wireless LAN applications, while on leave of absence from the University of Minnesota (2001-2003). His research interests include analog/RF circuits for wired and wireless circuits, data converters and low power analog design.

Dr. Harjani received the National Science Foundation Research Initiation Award in 1991. He received Best Paper Awards at the 1987 IEEE/ACM Design Automation Conference and at the 1998 GOMAC. His 1988 ICCAD paper was selected for the "The Best of ICCAD-20 Years of Excellence in Computer Aided Design" in 2002. His research group was the winner of the SRC Copper Design Challenge in 2000 and the winner of the SRC/IBM SiGe challenge in 2003. He was an Associate Editor for IEEE Transactions on Circuits and Systems Part II, Analog and Digital Signal Processing from 1995 to 1997. He is currently a Guest Editor for the International Journal of High-Speed Electronics and Systems and a Guest Editor for Analog Integrated Circuits and Signal Processing. He was the Chair of the IEEE Circuits and Systems Society technical committee on Analog Signal Processing from 1999 to 2000 and a Distinguished Lecturer of the IEEE Circuits and Systems Society from 2001 to 2002.

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