**EECS/CS Seminar Talk**

**Title:** On the Rules of Low-Power Design (and Why You Should Break Them)

**Speaker:** Todd Austin, Department of Electrical Engineering and Computer Science, University of Michigan in Ann Arbor

**Date:** Friday, April 11

**Time:** 11:00am – 12:00pm

**Location:** DBH 6011

**Abstract:** Energy and power constraints have emerged as one of the greatest lingering challenges to progress in the computing industry. In this talk, I will highlight some of the "rules" of low-power design and show how they bind the creativity and productivity of architects and designers. I believe the best way to deal with these rules is to disregard them, through innovative design solutions that abandon traditional design methodologies. Releasing oneself from these ties is not as hard as one might think. To support my case, I will highlight two rule-breaking design technologies from my work. The first technique (Razor) combines low-power designs with resiliency mechanisms to craft highly introspective and efficient systems. The second technique (Subliminal) embraces subthreshold voltage design, which holds great promise for highly energy efficient systems.

**Bio**: Todd Austin is a Professor of Electrical Engineering and Computer Science at the University of Michigan in Ann Arbor. His research interests include computer architecture, robust and secure system design, hardware and software verification, and performance analysis
tools and techniques. Currently Todd is director of C-FAR, the Center for Future Architectures Research, a multi-university SRC/DARPA funded center that is seeking technologies to scale the
performance and efficiency of future computing systems. Prior to joining academia, Todd was a Senior Computer Architect in Intel's Microcomputer Research Labs, a product-oriented research laboratory in Hillsboro, Oregon. Todd is the first to take credit (but the last to accept blame) for creating the SimpleScalar Tool Set, a popular collection of computer architecture performance analysis tools. Todd is co-author (with Andrew Tanenbaum) of the undergraduate computer
architecture textbook, "Structured Computer Architecture, 6th Ed." In addition to his work in academia, Todd is founder and President of SimpleScalar LLC and co-founder of InTempo Design LLC. In 2002, Todd was a Sloan Research Fellow, and in 2007 he received the ACM
Maurice Wilkes Award for "innovative contributions in Computer Architecture including the SimpleScalar Toolkit and the DIVA and Razor architectures." Todd received his PhD in Computer Science from the University of Wisconsin in 1996.

**Host:** Eli Bozorgzadeh, Associate Professor, Computer Science Department