

**University of Rochester**  
**Department of Electrical and Computer Engineering**  
**Colloquia Series**

**If You Didn't Test It, It Doesn't Work**

Dr. Robert Colwell  
Defense Advanced Research Projects Agency (DARPA)

Thursday, March 6<sup>th</sup>  
11:15AM – 12:15 PM  
Gleason Hall 318/418

**Abstract:** Engineers fundamentally believe that it's possible to "get it right", to create something new that always accomplishes its mission and never disappoints. Validators know that, if that is possible, it's exceedingly unlikely, because they've never seen it. Validators learn that if humans are involved, then human error is present. (And sometimes tool errors, manufacturing errors, user errors, and validation errors, possibly all at the same time.) Design engineers would do well to consider the validation attitude while creating their designs. Everyone should learn from their mistakes, but it's even better to learn from the mistakes of others. In this talk I will discuss the impacts and origins of design errors and validation mistakes, and talk about the best way forward.

**Bio:** Dr. Robert (Bob) Colwell joined the Microsystems Technology Office in April 2011 as the Deputy Director. Before joining DARPA, Dr. Colwell worked as a consultant specializing in general computer HW/SW consulting to industry and academia. From 1990 - 2001, Dr. Colwell worked for the Intel Corporation as Chief Architect (IA32) responsible for all of Intel's Pentium CPU architecture efforts. He also initiated and led Intel's Pentium 4 CPU development. In 1997, Dr. Colwell was named an Intel Fellow, the highest technical grade at the company. Dr. Colwell was a member of the technical staff at Bell Labs from 1977 to 1980, working on the BellMac series of microprocessors. Dr. Colwell has been a recipient of the Eckert-Mauchly Award for "outstanding achievements in the design and implementation of industry-changing microarchitectures, and for significant contributions to the RISC/CISC architecture debate. Dr. Colwell was elected to IEEE Fellow and the National Academy of Engineering for "contributions to turning novel computer architecture concepts into viable, cutting-edge commercial processors." Dr. Colwell was inducted into the American Academy of Arts and Sciences (AAAS) in 2010. Having written over two dozen publications and one book, Dr. Colwell has been an invited speaker by DARPA, Google, and multiple universities. He is the inventor/co-inventor on 40 patents and is a recipient of the Carnegie-Mellon Distinguished Alumni Fellows Award and an Alumni Achievement Award from the University of Pittsburgh. In September of 2012, Dr. Colwell became the Director for DARPA's Microsystems Technology Office. Dr. Colwell received a BSEE from the University of Pittsburgh, and his MS and PhD (both in computer engineering) from Carnegie-Mellon University.

Light refreshments will be provided.