Holcombe Department of Electrical and Computer Engineering
Seminar Series

Part I: Improving the Tradeoff Between Computation Time and Fidelity in Simulations of Mobile Wireless Communication Networks

Part II: The Future of Electrical and Computer Engineering at Clemson

Dr. Daniel Noneaker

Department of Electrical & Computer Engineering
Clemson University

Abstract
Assessment of the protocols that control a wireless communication network almost always employs Monte Carlo simulations to characterize the network’s performance with a given suite of protocols. The scale of a mobile wireless network, the dynamics of its radio communication environment, and the complexity of the signal-processing algorithms in its radio receivers can lead to a severe tradeoff in current network simulation models: a model of high accuracy requires excessive simulation time, and a model yielding a rapid simulation result sacrifices the fidelity of the result. This tradeoff is frequently encountered in research on wireless network protocols, compelling an undesirable choice between the timely availability of research data and confidence in the quality of the data. In the first part of the presentation, I will give an overview of an ongoing research project that is focused on improving the tradeoff.

In the second part of the presentation, I will address the strategic direction of the Holcombe Department of Electrical and Computer Engineering. I will focus on the key opportunities and challenges for the Department that I foresee in the next five years, and I will discuss some ideas for the Department's growth and improvement.

Biography of Speaker
Dr. Daniel L. Noneaker holds the rank of Professor in the Holcombe Department of Electrical and Computer Engineering at Clemson University, where he has been a member of the faculty since 1993. He served as Associate Chair and Graduate Program Coordinator of the Department from 2007 to 2014, and he currently serves as the Department’s Interim Chair.
Dr. Noneaker holds a B.S. degree in mathematics from Auburn University and M.S. degrees in mathematics and electrical engineering from Emory University and Georgia Tech, respectively. He was awarded the Ph.D. degree in electrical engineering from the University of Illinois at Urbana-Champaign in 1993. Dr. Noneaker has industrial experience in both hardware and software design for communication systems, including employment with Sperry-Univac and the Motorola Government Electronics Group.

Dr. Noneaker is engaged in research in wireless communications for both military and commercial applications, including cellular networks and mobile ad hoc radio networks. He has published numerous papers on design and performance analysis for spread-spectrum multiple-access communications, error-control coding for fading channels, signal acquisition, and protocols for packet radio networks. In 2008 he received the IEEE Military Communications Conference Award for Sustained Technical Achievement, which is awarded for outstanding, sustained technical contributions to military communications.