

## Distinguished Lectures Spring 2018



Colorado State University's Information Science and Technology Center (ISTeC) presents two lectures by

### Dr. Jeffrey M. Voas

Computer Scientist  
Secure Systems and Applications Group  
NIST

### ISTeC Distinguished Lecture

In conjunction with the Department of Computer Science, and Department of Electrical and Computer Engineering Seminar Series

#### ***Networks of 'Things'***

**Monday, April 23, 2018**

**Reception with refreshments: 10:30 a.m.**

**Lecture: 11:00 a.m.-12:00 noon**

**Morgan Library Event Hall**

Department of Computer Science, and Department of Electrical Engineering and Computer Science Seminar Series sponsored by ISTeC

#### ***IoT and Trust (25 Issues and Counting Up)***

**Monday, April 23, 2018**

**Lecture: 2:00-3:00 p.m.**

**Behavioral Sciences Building Room 103**

#### **Abstracts**

##### ***Networks of 'Things'***

System primitives allow formalisms, reasoning, simulations, and reliability and security risk-tradeoffs to be formulated and argued. In this talk, five core primitives belonging to most distributed systems are presented. These primitives apply well to systems with large amounts of scalability concerns, heterogeneity concerns, temporal concerns, and elements of unknown pedigree with possible nefarious intent. These primitives are the basic building blocks for a Network of 'Things' (NoT), including the Internet of Things (IoT). This talk offers an underlying and foundational understanding of IoT based on the realization that IoT involves sensing, computing, communication, and actuation. The material presented here is generic to all distributed systems that employ IoT technologies (i.e., 'things' and networks). The expected audience is computer scientists, IT managers, networking specialists, and networking and cloud computing software engineers. To our knowledge, the ideas presented here and the manner in which IoT is presented is unique.

##### ***IoT and Trust (25 Issues and Counting Up)***

This talk discusses the underlying and foundational science of IoT and gives the audience a general understanding of what IoT is. In this work, five core primitives belonging to most distributed systems are presented. These primitives form the basic building blocks for a Network of 'Things' (NoT) [NIST SP 800 183], including the Internet of Things (IoT). System primitives allow formalisms, reasoning, simulations, and reliability and security risk-tradeoffs to be formulated and argued. These primitives apply well to systems with large amounts of data, scalability concerns, heterogeneity concerns, temporal concerns, and elements of unknown pedigree with possible nefarious intent. The talk ends by suggesting 25 trust issues, that involve everything from 3rd party certification of 3rd party black-box services and products, to defective 'things', and to deliberate intentions to slow the flow of data in a IoT-based system.

#### **Speaker Biography**

Jeffrey Voas is an innovator. He is currently a computer scientist at the US National Institute of Standards and Technology (NIST). Before joining NIST, Voas was an entrepreneur and co-founded Cigital that is now part of Synopsys (Nasdaq: SNPS). He has served as the IEEE Reliability Society President (2003-2005, 2009-2010, 2017-2018), and served as an IEEE Director (2011-2012). Voas co-authored two John Wiley books (Software Assessment: Reliability, Safety, and Testability [1995] and Software Fault Injection: Inoculating Software Against Errors [1998]). Voas received his undergraduate degree in computer engineering from Tulane University (1985), and received his M.S. and Ph.D. in computer science from the College of William and Mary (1986, 1990 respectively). Voas is a Fellow of the IEEE, member of Eta Kappa Nu, Fellow of the Institution of Engineering and Technology (IET), Fellow of the American Association for the Advancement of Science (AAAS), and member of the Washington Academy of Sciences (WAS).

To arrange a meeting with the speaker, please contact Sudipto Ghosh ([sudipto.ghosh@colostate.edu](mailto:sudipto.ghosh@colostate.edu)).