



Halmstad Colloquium talk 2013-06-17:

Professor Kishor Trivedi on

“Stochastic Petri Nets”

Abstract:

Continuous-time Markov chains (CTMC) are often used to study the performance and reliability/availability of computer and communication systems. However, the construction and the solution of such CTMCs is a tedious and error-prone procedure, especially when the system under consideration is complex. Stochastic Petri nets (SPN) of various ilk and the corresponding software packages offer the capability of succinct specification, automated generation and the solution of the underlying CTMC. This talk will first provide a brief tutorial on stochastic Petri nets and then provide a recent application to IaaS cloud. It will end with extensions to SPNs such as the Markov regenerative SPN that allows general distributions and the Fluid stochastic Petri net that allows jointly continuous and discrete state spaces.

About

Kishor S. Trivedi holds the Hudson Chair in the Department of Electrical and Computer Engineering at Duke University. He has been on the Duke faculty since 1975. He is the author of a well-known text entitled, Probability and Statistics with Reliability, Queuing and Computer Science Applications, published by John Wiley. He has also published two other books entitled, Performance and Reliability Analysis of Computer Systems. He is a Fellow of the Institute of Electrical and Electronics Engineers. He has published over 490 articles and has supervised 44 Ph.D. dissertations. He is the recipient of IEEE Computer Society Technical Achievement Award for his research on Software Aging and Rejuvenation. He works closely with industry in carrying out reliability/availability analysis, providing short courses and in the development and dissemination of software packages such as SHARPE and SPNP.