

THE NATIONAL UNIVERSITY of SINGAPORE
Department of Industrial & Systems Engineering

&
IEEE, Singapore REL/CPMT/ED chapter

JOINT SEMINAR
On

RELIABILITY MODELING: TOOLS & TECHNIQUES

Speaker: Professor Kishor S. Trivedi, Duke University, USA

Date: 20 May, 2004 (Thursday)

Time: 3:00 p.m. to 4:30 p.m.

Venue: EA-06-03, Faculty of Engineering, NUS

Abstract: We present techniques such as fault-trees, Markov models and stochastic Petri nets via simple reliability modeling examples. We then review recent progress in modeling the reliability/performance of complex fault-tolerant systems. The problems faced while modelling such systems include the need to consider a very large state space, need to capture non-exponential distributions and the need to provide usable interfaces for practicing engineers. Some of the proposed solutions will be discussed. A software package, SHARPE, will also be discussed in brief.

Biography: Professor Trivedi holds the Hudson Chair in the Department of Electrical and Computer Engineering at Duke University, Durham, NC. He was an Editor of the IEEE Transactions on Computers from 1983-1987. He is a co-designer of HARP, SAVE, SHARPE, SPNP, and SREPT modeling packages. These packages have been widely circulated. He is the author of a well known text entitled, [*Probability and Statistics with Reliability, Queuing and Computer Science Applications*](#), originally published by Prentice-Hall. A thoroughly revised second edition has been published by Wiley. He has recently published two other books entitled, [*Performance and Reliability Analysis of Computer Systems*](#), published by Kluwer Academic Publishers and [*Queueing Networks and Markov Chains*](#), John Wiley. He has edited two books, *Advanced Computer System Design*, published by Gordon and Breach Science Publishers, and *Performance Modeling Tools and Techniques*, published by John Wiley & Sons. His research interests are in reliability and performance assessment of computer and communication systems. He has published over 300 articles and lectured extensively on these topics and has supervised 35 Ph.D. dissertations. He has recently developed solution methods for Markov regenerative processes and used it for performance and reliability analysis. He has applied his modeling techniques to a variety of "real world" applications. He is a fellow of IEEE. Currently, Prof Trivedi is visiting the School of EEE, NTU under the Tan Chin Tuan fellowship.

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