Dr. Bharat B. Madan
Professor, Dept. of Modeling Simulation and Visualization Engineering
Old Dominion University, Norfolk, VA. 23529

(a) Professional Preparation

Indian Institute of Technology, New Delhi, India. (Stochastic Signal Processing)	Ph.D. 1976
Indian Institute of Technology, India (Control Systems)	M.Tech. 1972
Birla Institute of Technology & Sciences, Pilani, India. (Electrical Eng.)	B.E. (Hons.) 1970

(b) Appointments

2012-Present	Professor, Department of Modeling, Simulation and Visualization Engineering, Old Dominion University, Norfolk, VA and, Director of Advanced Engineering Graduate Certificate Program on Cyber Systems Security
2004-2012	Department Head, Distributed Systems Department, Applied Research Laboratory, The Pennsylvania State University, University Park, PA.
2002-2004	Visiting Scholar, Department of Electrical and Computer Engineering, Duke University
1999-2002	Research Engineer, New Concepts Group, Ericsson, Inc. RTP, North Carolina
1996-1999	R&D Engineer, IBM Networking Software Division, RTP, North Carolina
1976-1996	Professor, Computer Science & Engineering, Indian Institute of Technology, New Delhi, India
1988-1989	Visiting Associate Professor, Department of Computer & Information Sciences, University of Delaware
1984-1985	NRC Senior Research Associate, Naval Postgraduate School, Monterey, CA.

Five closely relate publications

1. B.B. Madan, M. Banik and D. Bein, “Securing Unmanned Autonomous Systems from Cyber Threats”, accepted for publication, Journal of Defense Modeling and Simulation.
2. B.B. Madan and M. Banik “Intrusion Tolerant Architecture for Big Data File System”, ACM SIGMETRICS Performance Evaluation Review (PER), Volume 41, Number 4, pp. 65-69, March, 2014 (with Manoj Banik).
3. B.B. Madan, “System of Systems Security” Chap. 21, “Modeling and Simulation Support for System of Systems Engineering Applications” edited by Larry Rainey and Andreas Tolk, John Wiley, Aug. 2014.
4. B.B. Madan, S. Phoha and K.S. Trivedi , “Stack Overflow Fence: A Technique for Defending Against Buffer Overflow Attack”, Journal of Information Assurance and Security, Vol. 1, No. 2, pp. 129-136, June 2006.
5. B.B. Madan, K. Goseva-Popstajanova, K. Vaidyanathan and K.S. Trivedi “A method for Modeling and Quantifying the Security Attributes of Intrusion Tolerant System”, Performance Evaluation Journal, Vol. 56, Issues 1-4, March 2004, pp. 167-186.

Five other significant publications

1. B.B Madan, S. Dharmaraja and K.S. Trivedi, "Combined Guard Channel and Mobile Assisted Handoff for Cellular Networks", IEEE Transactions Vehicular Technologies, Vol. 57, No. 1, Jan. 2008, pp. 502-510
2. D. Bein, Y. Wen, B.B. Madan, S. Phoha and A. Ray "Distributed network control for mobile multi-modal wireless sensor networks", *Journal of Parallel and Distributed Computing* (2011) Vol. 71, No. 3, pp. 460-470.
3. B.B. Madan and K.S. Trivedi, "Security modeling and quantification of intrusion tolerant systems using attack-response graph", Journal of High Speed Networks, Vol. 13, No. 4, Oct. 2004, pp. 297-204
4. B.B. Madan and D. Bein, "MOE Quantification of Missions using Sensor Data Driven Graph Similarity Measures", Spring Simulation Conference 2015, Alexandria, VA, April 12-15, 2015.,
5. D. Wang, B.B. Madan and K.S. Trivedi "Security Analysis of SITAR Intrusion Tolerant System", Proc., 1st ACM Workshop on Survivable and Self-Regenerative System, Sept. 2003.

Recent courses taught at ODU

MSIM 470/570: Foundations of cyber security; MSIM 771: Networked systems security; MSIM671: Cyber systems engineering; MSIM 610: Continuous systems modeling; MSIM 281: Discrete event simulation; MSIM 210: Introduction to modeling and simulation.

Synergistic Activities

1. Dr. Madan conducts research in the areas of security, intrusion tolerance, distributed sensor systems, sensor data and information fusion, application of semantic web principles to distributed autonomous systems, signal processing and intrusion tolerant networks.
2. Over the last ten years, he has been working on a number of sponsored research projects dealing with intrusion tolerance, security quantification, sensor networks, sensor data fusion, wireless network capacity and semantics driven service oriented network of sensors & platforms.
3. At Penn State University, PI for two DTRA funded projects that dealt with modeling and analysis of cascading failures in infrastructure systems subjected to WMD events and the design of networking structures that can are inherently capable of surviving large scale failures caused by a WMD.
4. At Penn State University, he was the PI for the AFOSR funded research project "Dynamic Data Driven Machine Perception and Learning for Border Control" (AFOSR Award #FA9550-12-1-0270)
5. He has more than 25 years of experience in academia - ODU (2012 onwards), Penn State University (2004-2012), IIT Delhi (1976-1996), Duke University (2001-2004), Naval Postgraduate School (1984-1985) and University of Delaware (1988-1989).

Collaborators and Other Affiliations

P.K. Agarwal (Duke), W. Bein (UNLV), D. Bein (UNLV), S. Khanna (Juniper Networks),.T. LaPorta (PSU), S. Prasad (IIT, Delhi), S. Phoha (PSU), A. J. Paulraj (Stanford), A. Ray (PSU), N. Shroff (OSU), K. S. Trivedi (Duke), M. Zubair (ODU).

Graduate and Postdoctoral Advisors: Prof. A. K. Mahalanobis and Prof. Syd Parker.

PhD students supervised and graduated : Satwant Kaur (Oakland Univ., MI), M.V. Padmini (IIT Delhi), Atul Varshneya (IIT Delhi), Rajiv Jain (IIT Delhi), Mohammed Zubair (IIT Delhi), M. Balakrishnan (IIT Delhi), S. Gauba (IIT Delhi).

Current PhD students being supervised: Two