

PERSONAL

EDUCATION

Ph.D., Mechanical Engineering, Rensselaer Polytechnic Institute, Troy, NY (GPA 4.0/4.0)
M.S., Mechanical Engineering, Rutgers University, Piscataway, NJ (GPA 3.8/4.0)
B.S., Mechanical Engineering, Indian Institute of Technology, New Delhi, India (GPA 3.76/4.0)

EMPLOYMENT HISTORY

2008-Present Associate Professor, University at Albany, SUNY (Albany, NY)
2001-2007 Assistant Professor, University at Albany, SUNY (Albany, NY)
1996-2001 Mechanical Engineer, GE Global Research (Schenectady, NY)
1994-1996 Systems Analyst, Keane Inc. (Albany, NY)
1990-1994 Consultant, General Electric Consulting Services (Albany, NY)
1988-1990 Graduate Research Assistant, Rutgers University (New Brunswick, NJ)

SELECTED HONORS AND AWARDS

1. AT&T Industrial Ecology Faculty Fellowship (2009 - 2010)
2. Faculty Research Award Program (FRAP A/B) – (2007)
3. SUNY Chancellor's Award for Excellence in Teaching (2006).
4. Dean's Advisory Board Research Award (2006).
5. University at Albany Excellence in Teaching (Full-Time) Award (2006).
6. Graduate Student Organization Award for Faculty Mentoring (2006).
7. Promising Inventors Award (First Time Invention Disclosure) from the SUNY Research Foundation (2005).
8. Dean W. Warren Haynes Outstanding Graduate Teaching Award, School of Business (2005).
9. Faculty Research Award Program (FRAP A) - (2002).

SCHOLARSHIP

Articles published in refereed journals

1. Goel, S. & Shawky, H. Measuring the Impact of Security Breaches on Stock Valuations of Firms. Accepted – Editorial Process, June 2009 in *Information & Management*.
2. Rosenkrantz, D., Goel, S., Ravi, S.S., & Gangolly, J. Resilience Metrics for Service-Oriented Networks: A Service Allocation Approach. Accepted May 2009 for publication in *IEEE Transactions on Services Computing*. (A preliminary version in the *Proceedings of the 5th European Dependable Computing Conference, 2005*)
3. Goel, S., & Lauría, E.J.M. Quantification, Optimization, and Uncertainty Modeling in Information Security Risks: A Matrix Based Approach. Accepted 2009 *Information Resources Management Journal*.
4. Goel, S., Talya, S.S., Sobolewski, M. (2008). Mapping Engineering Design Processes onto a Service-Grid: Turbine Design Optimization. *International Journal of Concurrent Engineering: Research & Applications*, 16(2), 139-147. (A preliminary version in the Proceedings of the Concurrent Engineering Conference, 2005)
5. Goel, S., & Chen, V. (2008). [Can Business Process Reengineering Lead to Security Vulnerabilities: Analyzing the Reengineered Process](#). *International Journal of Production Economics*,

- 115(1), 104-112. (A preliminary version in the Proceedings of the *Fourth Workshop on e-Business - WeB 2005*)
6. Goel, S., & Chen, V. (2008). [Integrating the Global Enterprise Using Six Sigma: Business Process Reengineering at General Electric Wind Energy](#). *International Journal of Production Economics Special Section on Advanced Modeling and Innovative Design of Supply Chain*, 113(2), 914-927. (A preliminary version in the Proceedings of the *Fourth Workshop on e-Business - WeB 2005*)
 7. Goel, S., Brown, C. , & Shawky, H. (2007). Complexity and the Performance of Investment Portfolios. *Advances in Investment Analysis and Portfolio Management*, 3(2007), 83-102.
 8. Goel, S., Pon, D., & Menzies, J. (2006). [Managing Information Security: Demystifying the Audit Process for Security Officers](#). *Journal on Information Systems Security (JISSEC)*, 2(2), 25-45.
 9. Goel, S., & Gangolly, J. S. (2006). On Decision Support for Distributed Systems Protection: A Perspective Based on the Human Immune Response System and Epidemiology. *International Journal on Information Management*, 27(4), 266-278.
 10. Goel, S., Pon, D., & Bloniarz, P., Bangert-Drowns, R., Berg, G., Delio, V., Iwan, L., Hurbanek, T., Schuman, S., Gangolly, J., Baykal, A., and Hobbs, J., (2006). [Innovative Model for Information Assurance Curriculum: A Teaching Hospital](#). *ACM Journal on Educational Resources in Computing, Special Issue on Support for the Computer Security Curriculum*, 6(3). (A preliminary version in proceedings of the Information Resource Management Association Conference, 2005)
 11. Goel, S., Baykal, A., & Pon, D. (2006). [Botnets: The Anatomy of a Case](#). *Journal of Information Systems Security (JISSEC)* 1(3), 45-60. (A preliminary version in the Proceedings of the 4th Annual Security Conference, 2005)
 12. Bush, S. F., and Goel, S. (2005). [An Active Model-Based Prototype for Predictive Network Management](#). *IEEE Journal on Selected Areas in Communications, Special Issue on Recent Advances in Managing Enterprise Network Services*, 23(10), 2049-2057.
 13. Goel, S., Talya, S.S., & Sobolewski, M. (2007). [Service-Based P2P Overlay Network for Collaborative Problem Solving](#). *Decision Support Systems*, 43(2), 547-568. (A preliminary version in the Proceedings of the HICSS Conference, 2004)
 14. Goel, S., & Bush, S. F., (2003). [Kolmogorov Complexity Estimates for Detection of Viruses in Biologically Inspired Security Systems: A Comparison with Traditional Approaches](#). *Wiley Interscience Complexity Journal* 9(2), 54-73. (Presented at the Santa Fe Institute Workshop on Adaptive and Resilient Computing Security, 2003)
 15. Tam, K., Goel, S., & Gangolly, J. (2003). [On the Design of an XML-Schema Based Application for Business Reporting: An XBRL Schema](#). *International Journal of Digital Accounting Research*.
 16. Goel, S., & Hajela, P. (2002). A Classifier Based Optimization Technique for Designing Turbine Airfoils. *Engineering Optimization*, 34,195-218.
 17. Goel, S., & Hajela, P. (1996). Identification of Parameter Couplings in Turbine Design using Neural Networks, *ALAA Journal of Propulsion and Power*, 12(3), 75-102. (A preliminary version in the proceedings of the 5th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization)

Articles in other journals

1. Goel, S., & Bush, S.F. (December 2004). [Biological Models of Security for Virus Propagation in Computer Networks](#). *login*, 29(6), 49-56.
2. Goel, S., & Bush, S.F. (2005). Biological Models of Security in Computer Networks Based on Cellular Mechanisms. *login*: (Under Revision)

Manuscripts in refereed journals under review

1. Bush, S.F. & Goel, S. Graph Spectra for Communications in Biological and Carbon Nanotube Networks. (Submitted May 2009 to the *IEEE Journal on Selected Areas in Communications (JSAC) Special Issue on Bio-Inspired Networking*)
2. Goel, S. & Bush S.F. Network Security: Inferring the Security Interactome. (Submitted March 2009 to the *Transactions on Autonomous and Adaptive Systems (TAAS) Journal: Special Issue on Adaptive Security Systems*)
3. Goel, S., Miesing, P., & Chandra, U. How Technology Innovation is Transforming the Media Industry. (*California Management Review – Revising to Resubmit*)
4. Goel, S., & Chen, V. Managing Information Security Risks in a Dynamic Environment: A Case Study at General Electric Energy. (Submitted April 2009 to the *Journal of Information Systems*)
5. Goel, S., & Chengalur-Smith, I-N. Metrics for Characterization of Security Policies – Perceptions and Algorithms. (*Journal of Strategic Information Systems— Revising to Resubmit*) (A preliminary version in the *Proceedings of the Softwars Conference, 2006*)
6. Goel, S. 3D Turbine Airfoil Geometry Optimization using Quasi-3D Analysis Codes (Submitted May 2009 to the *International Journal of Aerospace Engineering*)

Work In Progress

1. Goel, S., Pon, D., Niebour, R., and Essel, K. Do You Have or Need a Life Preserver? A Decision-Making Process and Methodology for Disaster Management Policy Development that Will Keep Your Head above Water. (Planned submission to *MISQ* or *Decision Support Systems*)
2. Goel, S., and Pon, D. *Communications of the ACM*.
3. Goel, S., & Azoff, J. Network Forensics: Countering the Surge of the Botnets. *Decision Support Systems*.
4. Goel, S., & Halder, P. Developing Entrepreneurial Workforce in Sciences: Joint Business Nanosciences Program. (Planned submission to *Nanotechnology Law and Business*)
5. Goel, S., & Rangan, P.A. Can Immune Systems Provide a Credible Model for Network Security: A RePast Simulation of a Distributed Immune System.
6. Goel, S., & Sobolewski, M. Secure Resilient Distributed Service-Based Architecture: Decision Support System for Complex Engineering Design. (Planned submission to *Decision Support Systems*.) (A preliminary version in the Proceedings of the IASTED Conference on Communication, Network, and Information Security (CNIS), 2003)

Scholarly books and chapters in scholarly books

1. Goel, S., & Baykal, A., & Pon, D. (2007). Botnets: Anatomy of a Case. In G. Dhillon (Ed.), *Principles of IS Security: Text and Cases*. Hoboken, NJ: John Wiley & Sons, 335-348. (Originally published in the *Journal of Information Systems Security*)
2. Goel, S., & Pon, D. (2006). Information Security Risk Analysis: A Pedagogic Model Based on a Teaching Hospital. In N. Sarkar (Ed.), *Tools for Teaching Computer Networking and Hardware Concepts*. Hershey, PA: Information Science Publishing, 179-199.
3. Goel, S., & Embrechts M. (1996). Quantification of shape characteristics by using Neural Nets. *ARTIFICIAL NEURAL NETWORKS IN ENGINEERING: Intelligent Systems through Artificial Neural Networks, Smart Engineering Systems, Neural Networks, Fuzzy Logic and Evolutionary Programming*, 6, Ed. Dagli C. H., Akay M., Chen C. L. P., Fernandez B., and Ghosh J., 1996.

Papers in Conference Proceedings

1. Bush, S.F., & Goel, S. (2009). The Impact of Persistence Length on the Communication Efficiency of Microtubules and CNT's, Accepted June 2009 for *Proceedings of the Fourth International ICST Conference on Nano-Networks (Nano-Net 2009)*, October 18-20, 2009, Luzern, Switzerland.
2. Chinnam, S., & Goel, S. (June 2-3 2008). Classification of DoS Attacks using MIB Objects. *7th Annual Security Conference*. Las Vegas, NV.
3. Goel, S., & Baykal, A. (November 4-7, 2007). Information Theoretic Approach for Characterization of Network Traffic. *INFORMS Annual Meeting*, Seattle, WA.
4. Goel, S., Brown, C., & Shawky, H. (April 11-12, 2007). Measuring the Impact of Security Breaches on Stock Valuations of Firms. *6th Annual Security Conference*. Las Vegas, NV.
5. Goel, S. (Sept. 22-23, 2006). [Blueprint of a Security Glossary: A Common Language for Creating International Security Policies](#). In J. Von Knop, A.A. Salnikov, V.V. Iashchenko (eds.) (2007). *Proceedings of the Advanced Research Workshop: A Process for Developing a Common Vocabulary in the Information*, sponsored by NATO-Russia Council Science Committee, Lomonosov University, Russia. Fairfax, VA: IOS Press, pp. 52-61.
6. Bush S. F., & Goel, S., (Sept. 14-16, 2006). Graph Spectra of Carbon Nanotube Networks. *Proceedings of the First International Conference on Nano-Networks*. Lausanne, Switzerland.
7. Goel, S., & Crnkovic, Y. (May 21-24, 2006). RFID: Risks to the Supply Chain. *Proceedings of the Information Resource Management Association (IRMA) International Conference*, Washington, D.C.
8. Goel, S., & Baykal, A. (April 19-20, 2006). Improving Intrusion Detection: Analyzing the Payload in Network Traffic. In the *Proceedings of the 5th Annual Security Conference*, Las Vegas, NV.
9. Goel, S., & Chengalur-Smith, IN. (December 10-11, 2005). An Innovative Approach to Security Policy Metric Development: A Foundation for Research in Security Policy Management. *Proceedings of SoftWars*, Imperial Palace, Las Vegas, NV.
10. Goel, S., & Chen, V. (December 10, 2005). Managing Risks in Business Process Reengineering: A Case Study at General Electric Wind Energy. *Proceedings of the Fourth Workshop on e-Business (WeB 2005)*, The Venetian, Las Vegas, NV.
11. Lessner, L. & Goel, S., (August 7-11, 2005). Modeling a Computer Virus Epidemic. *Proceedings of the American Statistical Association Joint Statistical Meetings (JSM)*.
12. Goel, S., & Allen, MB. (July 10-13, 2005). A Risk Analysis Model to Predict Financial Loss Due to Cyber Attacks. *Proceedings of the Symposium on Risk Management and Cyber-Informatics (RMCI'05)*, Orlando, FL.
13. Goel, S., & Pon, D. (June 15-17, 2005). Distribution of Patches within Vulnerable Systems: A Distributed Model. *Systems, Man and Cybernetics (SMC)*. *Proceedings from the Sixth Annual IEEE Information Assurance Workshop*, USMA, West Point, NY, 458- 460.
14. Goel, S., Talya, S.S., & Sobolewski, M. (July 25-29, 2005). [Preliminary Design Using Distributed Service-Based Computing](#). *Proceedings of the 12th ISPE International Conference on Concurrent Engineering: Research and Applications*, Fort Worth/Dallas, TX.
15. Goel, S. (April 27-28, 2005). Innovative Model for Simplifying Information Security Risk Analysis. *Proceedings of Working Together: R&D Partnerships in Homeland Security, a R&D Partnering Conference* Sponsored by the Department of Homeland Security, Boston, MA.
16. Goel, S. & Chen, V. (May 23-26, 2005). [Information Security Risk Analysis - A Matrix-Based Approach](#). *Proceedings of the Information Resource Management Association (IRMA) International Conference*, San Diego, CA.
17. Goel, S., & Pon, D. (May 23-26, 2005). An Innovative Model for Information Assurance Curriculum: A Teaching Hospital. *Proceedings of the Information Resource Management Association (IRMA) International Conference*, San Diego, CA.

18. Rosenkrantz, D., Goel, S., Ravi, S.S., & Gangolly, J. (April 20-22, 2005). [Structure-Based Resilience Metrics for Service-Oriented Networks](#). Proceedings of the *5th European Dependable Computing Conference*, Budapest, Hungary.
19. Baykal, A., Goel, S., & Pon, D. (March 30-31, 2005). Botnets: the Anatomy of a Case. Proceedings of the *4th Annual Security Conference*, Las Vegas, NV.
20. Goel S., & Talya, S. (August 2004). Constrained Optimization Using Cellular Automata. Proceedings of the *10th ALAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, Albany, NY.
21. Goel, S., Belardo, S., & Iwan, L. (Jan. 5-8, 2004). [A Resilient Network that Can Operate Under Duress: To Support Communication between Government Agencies during Crisis Situations](#). *Hawaii International Conference on System Sciences*, Big Island, HI.
22. Goel, S., & Sobolewski, M. (December 2003). Trust and Security in Enterprise Grid Computing Environment. *Proceedings of the LASTED Conference on Communication, Network, and Information Security (CNIS 2003)*, New York City.
23. Goel, S., & Gangolly, J. (August 4-5, 2003). Model for Trust Among Peers in Electronic Multiparty Transactions. Proceedings of the *AMCIS Conference*. Tampa, FL.
24. Maughan, J.R., Hill, J.M., Willey, L.D., & Goel, S. (July 23-26 2000). Development of the Densepack Steam Turbine: A New Design Methodology for Increased Efficiency. *International Joint Power Generation Conference*, FL.
25. Goel, S., Cofer, J.I., & Singh H. (June 10-13 1996). Turbine Airfoil Design Optimization. *International Gas Turbine and Aeroengine Congress and Exposition*, Birmingham, UK.
26. Goel, S., & Lamson, S. (November 12-17 1995). Automating the Design Process for 3D Turbine Blades. (ME 1995) *International Mechanical Engineering Congress and Exposition*, San Francisco, CA.
27. Goel, S., & Hajela, P. (September 7-9 1994). Identification of Parameter Couplings in Turbine Design using Neural Networks. *5th ALAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Panama City Beach, FL.
28. Goel S., & Lamson, S.H. (April 1994). Knowledge-Based System for Detailed Blade Design of Turbines. *Applications of Artificial Intelligence XII: Knowledge-Based Systems in Aerospace and Industry*, Orlando, FL.
29. Goel, S., Cherry, D., & Gregory, B. (April 1993). Knowledge-Based System for Preliminary Aerodynamic Design of Aircraft Engine Turbines. *Applications of Artificial Intelligence XI: Knowledge-Based Systems in Aerospace and Industry*, Orlando, FL.
30. Tong, S.S., Powell, D.J., & Goel, S. (February 1992). Integration of Artificial Intelligence and Numerical Optimization Techniques for the Design of Complex Aerospace Systems. Proceedings of the *Aerospace Design Conference*, Irvine, CA. AIAA-92-1189.
31. Lee, H., Goel, S., Hunter, S., Gregory, B., & Tong, S.S. (July 1993). Toward Modeling for Concurrent Design of Aircraft Engine Turbines. 38th ASME *International Gas Turbine and Aeroengine Congress and Exposition*, Cincinnati OH.
32. Goel, S., & Kwon, T.H. (August 1992). Geometric Reasoning for Automated Design of an Injection-Mold Cooling System. *LAPR Workshop on Structural and Syntactic Pattern Recognition*, Berne, Switzerland.
33. Rao, P.N., & Goel, S. (1988). A Study in Computer Aided Process Planning, *Workshop on Computer Aided Manufacture*. The Institution of Engineers (India).

Presentations at Conferences, Symposiums, & Workshops

1. Goel, S., & Pon, D. (June 3, 2009). Cyber Warfare X-Men: Hacking Underground. *12th Annual NYS Cyber Security Conference*, Empire State Plaza, Albany, NY.

2. Goel, S. (April 20 – 23, 2009). Cyber Warfare: The New Frontier of International Conflict. *Third International Forum “Partnership of State Authorities, Civil Society and the Business Community in Ensuring Information Security and Combating Terrorism”*, Garmisch-Partenkirchen, Munich, Germany.
3. Goel, S., & Pon, D. Internet Security and Safety. (March 17, 2009). *11th Annual Adirondack Technology Showcase*. Adirondack Community College, Queensbury, NY.
4. Goel, S. (February 26-27, 2009). Cyber Warfare: The New Frontier of International Conflict. *National Expert Workshop on Combating Terrorist Use of the Internet / Comprehensively Enhancing Cyber-Security*. Belgrade, Serbia.
5. Goel, S. (October 30 – November 1, 2009). Scientists Innovate and the Terrorists Appropriate: Are Scientists Unconsciously Facilitating Terrorism? *Fourth International Scientific Conference on Security and Countering Terrorism Issues*. Lomonosov Moscow State University, Moscow, Russia.
6. Goel, S., Pon, D., Niebour, R., Essel K., (June 4, 2008). Emergence of Technology: New Threats on the Horizon. [Plenary Address]. *11th Annual NYS Cyber Security Conference*, Empire State Plaza, Albany, NY.
7. Goel S. (April 7-10, 2008). The Governance of Internet – Does the U.S. have Undue Control? [Plenary Address] *Second International Forum: Partnership among State, Business Community and Civil Society in Ensuring Information Security*, Garmisch-Partenkirchen, Germany.
8. Goel, S. (December 29, 2007). Creating Security Policies for Information Protection. [Plenary Address]. *5th International Conference on e-Governance (ICEG-2007)*. University of Hyderabad, Hyderabad, India.
9. Goel, S. (October 26, 2007). The Governance of Internet - Problems of Internationalization. *Third International Scientific Conference on Security and Counter Terrorism Issues*. Lomonosov Moscow State University, Moscow, Russia.
10. Goel, S. (July 18, 2007). Patrolling the Internet. [Plenary Address]. *Conference on Information Science, Technology, and Management (CISTM '07)*. Osmania University Campus, Hyderabad, India.
11. Goel, S., Brown, C., & Shawky, H. (June 24, 2007). Measuring the Impact of Security Breaches on Stock Valuations of Firms. *27th International Symposium on Forecasting*. Marriott Marquis, Times Square, New York, NY.
12. Goel, S., & Pon, D. (June 6, 2007). The Changing Face of Hacking: Live Hacking Demonstration. [Plenary Address]. *10th Annual NYS Cyber Security Conference*, Empire State Plaza, Albany, NY.
13. Goel S. (April 9-11, 2007). Patrolling the Internet: Monitoring the Dark Space. *Advanced Research Workshop: Patrolling versus Controlling: a New Paradigm for Monitoring Information Networks*, Garmisch-Partenkirchen, Germany.
14. Goel, S., & Bush, S.F. (November 1-2, 2006). A Model for Computer Network Pathway Analysis: Analogy from Cellular Regulatory Pathway, *SFI Workshop on Adaptive and Resilient Computing Security (ARCS)*, Santa Fe Institute, Santa Fe, NM.
15. Goel, S., Pon, D., & Brown, C. (June 14, 2006). Hacking in the Air: Is Wireless Secure? *NYS Cyber Security Conference*, Empire State Plaza, Albany, NY.
16. Goel, S., & Bush, S.F. (November 2-3, 2005). RNAi Inspired Model of Computer Network Security, *SFI Workshop on Adaptive and Resilient Computing Security (ARCS)*, Santa Fe Institute, Santa Fe, NM.
17. Dale, M., Bloniarz, P., & Goel, S. (July 15, 2005). Latest Trends and Developments in Forensic Science. *DAASNY Summer Conference 2005*, Otesaga Hotel, Cooperstown, NY.
18. Goel, S., Pon, D., & Brown C. (June 15, 2005). Hackers on the Move: Threats to Wireless Security. *8th Annual NYS Cyber Security Conference*, Empire State Plaza, Albany, NY.
19. Goel, S. (June 13, 2005). Botnets: Cyber Drone Armies of the Unscrupulous. *SUNY Technology Conference*, Hudson Valley Resort & Spa, Kerhonkson, NY.

20. Goel, S. (March 23, 2005). Botnets: Cyber Drone Armies of the Unscrupulous. *6th Annual CERIAS Symposium: Security in Motion*, Purdue University, Purdue, IN.
(Also presented at the SUNY Technology Conference)
21. Goel, S., & Dark, M. (March 23, 2005). Teaching Hospital: Reaching the Masses through Distance Delivery. *6th Annual CERIAS Symposium: Security in Motion*, Purdue University, Purdue, IN.
22. Goel, S., & Bush, S.F. (November 3-4, 2004). Network Security Inspired by Biological Regulatory Networks. *SFI Workshop on Adaptive and Resilient Computing Security (ARCS)*, Santa Fe Institute, Santa Fe, NM.
23. Goel, S., Prazak, S., & Pon, D. (September 2004). Cyber Threats! Live Demonstrations. *Sixteenth Annual Government Technology Conference (GTC East 2004)*, Security Boot Camp, Empire State Plaza, Albany, NY.
24. Goel, S., Prazak, S., & Pon, D. (June 2004). Information Systems Vulnerability and Protection. *SUNY Technology Conference*, Hudson Valley, NY.
25. Goel, S., Brophy, M., and Prazak, S. (April 21-22 2004). Cyber Attack! Threats and Vulnerabilities. *New York State Cyber Security Conference*, Empire State Plaza, Albany, NY.
26. Goel, S., & Bush, S.F. (November 5-6 2003). Kolmogorov Complexity Estimates for Detection of Viruses in Biologically Inspired Security Systems. *SFI Workshop on Adaptive and Resilient Computing Security*, Santa Fe Institute, Santa Fe, NM.
27. Goel, S. (February 24-25 2003). Immune/Epidemiology Models for Security. *New York State Cyber Security Symposium*, Utica, NY.

Speeches/Lectures

1. Goel, S., Lodin, S., Soloman, J. (March 24, 2005). Shifting Assets [Panel Discussion]. 6th Annual CERIAS Symposium: Security in Motion, Purdue University, Purdue, IN.
2. Payne, G., Trapp, R., & Goel, S. (2004). Performing a Cyber Security Risk Assessment: Why? When? and How? National Webcast Initiative Retrieved from http://www.cscic.state.ny.us/msisac/webcasts/8_04/8_26.htm
3. Goel, S., & Prazak, S. (December 2004). Cyber Security: Are We Ready? Korean Executive Program, University at Albany, Albany, NY.

SUBMITTED GRANTS

Title: Self-Organized Integrated Transportation System: Intelligent Traffic Control Using Vehicular Sensor Data

PI: Goel, S.

Agency: Federal Highway Administration, U.S. Department of Transportation

Amount Requested: \$940,668

Anticipated Duration: 01/10 – 12/12

Type: Competitive (National)

Title: Adaptive Traffic Control using Self-Organization Models: Modeling, Simulation and Prototyping

PI: Goel, S.

Agency: Region II University Transportation Research Center

Amount Requested: \$50,853

Anticipated Duration: 01/10 – 12/10

Type: Competitive (Regional)

Title: First Responder Digital Evidence – Mobile Device Academy
Investigators: Dale, W.M, Goel, S. (Co-PI)
Agency: National Institute of Justice
Amount Requested: \$983,654
Anticipated Duration: 01/10 – 12/10
Type: Competitive (National)

Title: Benchmarking and Investigation of Mobile Device Forensic Tools for Data Acquisition and Analysis
PI: Goel, S.
Agency: National Institute of Justice
Amount Requested: \$526,797.55
Anticipated Duration: 2/10 – 1/12
Type: Competitive (National)

Title: Digital Forensics Training Academy (DFTA)
PI: Goel, S.
Agency: US Department of Justice
Amount Requested: \$777,905.54
Anticipated Duration: 1/09 – 12/09
Type: Competitive (National)

Title: Mobile Device Forensics: Helping Law Enforcement Keep Up with Tech-Savvy Gangs and Organized Crime
PI: Goel, S.
Agency: National Institute of Justice
Amount Requested: \$777,905.54
Anticipated Duration: 9/09 – 8/11
Type: Competitive (National)

RECEIVED GRANTS & FUNDING

Title: Investigating Complex Systems: Can Communicating Light Signals Reduce Congestion and Emissions?
PI: Goel, S.
Agency: AT&T Foundation
Amount: \$25,000
Duration: 06/09 – 05/10
Type: Competitive (National)

Title: Self-Organized Transport System
PI: Goel, S.
Agency: New York State Energy Research and Development Authority (NYSERDA)
Amount: \$142,000
Duration: 06/09 – 05/12
Type: Competitive (State)

Title: Information Classification Training
PI: Goel, S.
Agency: NYS Office of Cyber Security and Critical Infrastructure Coordination
Amount: \$44,244
Duration: 05/2008 – 06/2009
Type: Non Competitive (Agreement)

Title: Self-Organization and Communication in Nano-Sensors: Analyzing a Network of Random Carbon Nano-Tubes
PI: Goel, S.
Agency: School of Business
Amount: \$5,000
Duration: 07/09 - 06/10
Type: Competitive (School of Business)

Title: NIJ FY08 OST Congressionally Directed Award - NERFI
Investigators: Orokos, D., Goel, S. (Co-PI), Stzralkowski, T.
Agency: National Institute of Justice
Amount: \$514,249
Duration: 07/08 - 08/10
Type: Competitive (Federal)

Title: Self-Organization of Traffic
PI: Goel, S.
Agency: Region II University Transportation Research Center / UAlbany
Amount: \$40,000
Duration: 07/08 - 08/08
Type: Competitive (Regional)

Title: Analysis of Malicious Code on an Automated Quarantined Environment
PI: Goel, S.
Program: FRAP(A/B)
Agency: University at Albany, State University of New York
Amount: ~\$8,000
Duration: 06/07 - 06/08
Type: Competitive (SUNY Albany)

Title: Computing the Exposure of Firms to Security Breaches: Based on Event-Study Methodology
PI: Goel, S.
Program: CIIM
Agency: Center for Institutional Investment Management
Amount: \$5,000
Duration: 05/07 – 05/08
Type: Competitive (SUNY Albany)

Title: Creating Data Classification Policies for New York State.
PI: Goel, S.

Agency: NYS Office of Cyber Security and Critical Infrastructure Coordination

Amount: \$55,000

Duration: 09/15/06 – 04/30/07

Type: Non Competitive (Agreement)

Title: Capital Region Cyber Crime Partnership

PI (UAlbany): Goel, S.

PI (NYPTI): Byrne, S.

PI (NYSP): Stevens, R.

Program: Edward Byrne Memorial State and Local Law Enforcement Assistance Discretionary Grants Program

Partners: NY Prosecutors Training Institute, NY State Police

Agency: Bureau of Justice Assistance

Amount: \$82,266 out of \$246,800 (Shared equally among the partners)

Duration: 10/01/06- 09/30/07

Type: Competitive (Federal)

Title: Estimating the Impact of Security Breaches using Stock Valuations

PI: Goel, S.

Program: Advisory Board Research Award

Agency: School of Business

Amount: \$5,000

Duration: 04/01/06 – 04/01/07

Type: Competitive (School of Business)

Title: Capital Region Cyber Crime Partnership

PI (UAlbany): Goel, S.

PI (NYPTI): Byrne, S.

PI (NYSP): Stevens, R.

Program: Omnibus Appropriations Bill

Partners: NY Prosecutors Training Institute, NY State Police

Agency: Commerce, Justice, and State Departments

Amount: \$75,000 out of \$225,000 (Shared equally among the partners)

Duration: 09/01/05 - 08/31/06

Type: Competitive (Federal)

Title: Information Security Education in the Public Sector

Investigators: Bloniarz, P. Goel, S., and Berg, G.

Program: SFS-Institutional Development (01-167)

Agency: NSF

Amount: \$200,000

Duration: 07/01/02 - 07/01/06

Type: Competitive (National)

Title: The Information Security Academy: A Partnership Model for Building Public Sector Capacity

Investigators: Bloniarz, P., Gangolly, J., Goel, S., Erbacher, R., Berg, G., and Bangert-Drowns, R.

Program: Fund for Improvement to Post-Secondary Education (FIPSE)

Agency: United States Department of Education

Amount: \$485,883

Duration: 09/01/02 - 08/31/04

Type: Competitive (National)

Title: Cyber Security Laboratories

Investigators: Bloniarz, P., Goel, S., and Berg, G.

Program: Edward Byrne Memorial State and Local Law Enforcement Assistance Grant Program (Byrne Grant), U.S. Department of Justice

Agency: New York State Office of Cyber Security and Critical Infrastructure Coordination

Amount: \$375,000

Period: 09/01/02 - 08/31/05

Type: Non Competitive (Agreement)

Title: Sharing of Services in Peer-to-Peer Networks: Business Applications, Collaborative Research & Education.

Investigators: Goel, S.

Program: FRAP(A)

Agency: University at Albany, State University of New York

Amount: ~\$10,000

Period: 06/02 - 06/03

Type: Competitive (SUNY, Albany)

EDUCATION

Curricula or Courses Developed

2008 – 2009

1. Information Classification: Developed and delivered 4 hours of Information Classification training including lecture material and exercises for the NYS Office of Cyber Security and Critical Infrastructure Coordination. This material will be incorporated into other ITM classes.

2007- 2008

1. ITM 692: Revamped the ITM 692 course by adding a Business Intelligence component to the class. The class focused on learning tools and techniques for Classification, Clustering, and Association Rule Mining.
2. INF 723: Developed a part of the INF 723 Ph.D. proseminar class in the INF Doctoral Program. Specifically focused on Information Theory and Decision Analysis components of the curriculum

2006- 2007

1. INF 741 (Security Policies): Developed online distance-delivery version of the two-day immersion course developed the previous year.
2. INF 742 (Computer Forensics): Created two-day immersion class on computer forensics with NYS Police and New York Prosecutor's Training Institute and NYS Office for Critical Infrastructure Coordination.
3. Disaster Recovery: Created a one-day class on Disaster Recovery focused on computing related disasters. The class discussed the tools and techniques for recovering data.

2005-2006

1. Information Assurance Certificate Program: Developed an Information Assurance Certificate program at the University at Albany with other faculty from School of Business and Computer Science Department. The proposed program is designed to train the workforce in skills required for practice in the area of information assurance. Currently, the industry is facing an acute shortage of skilled workforce in the area of information assurance. Training of the workforce in the area of information assurance is a critical mission for the University at Albany.
2. Information Assurance Ph.D. Concentration: Developed the Ph.D. concentration in the joint Ph.D. program offered through the College of Computing and Information. Currently the joint director of the Ph.D. concentration along with Neil Murray.
3. Data Analysis and Business Intelligence Compact: Developed a compact plan for a program on business intelligence and data analytics at the School of Business. This plan will fill the void at the university in an area pervasive across several disciplines such as finance, information assurance, marketing, sociology, criminal justice, etc. The plan includes offering a series of courses from undergraduate (senior), to masters and Ph.D. level courses that cover the entire spectrum of business intelligence. Such a focus will make the students more competitive in the marketplace and provide essential data analysis skills to our Ph.D. students.
4. INF 710 (Information Security Risk Analysis): Developed a multimedia distance delivered course for Information Security Risk Analysis for students at the university and state employees through grants from National Science Foundation (NSF) and Department of Education. This involved recording lectures in a studio, creating assignments, assessment, and cases suitable for distance delivery. In addition, online forums were created to facilitate student interaction online. The inaugural module was offered through WebCT in November 2005 and was attended by state government employees and University students.
5. INF 711 (Security Policies): Developed a course in Security Policies that was offered through a two-day immersion class format in December 2005. The course development included preparation of lecture materials, cases, as well as assessment. Distance delivery module is currently in its second revision and will be offered in spring 2007.
6. Business and Information Decision Systems (BIDS) Ph.D. Concentration: Worked on development of BIDS concentration in the Information Science Ph.D. program. Specifically responsible for the Decision Systems modeling track of the concentration.
7. Social, Security, and Privacy Implications of Computing Workshop: On February 17, 2006 a full-day class was offered to state employees from various agencies such as: OSC, OFT, OMH, etc. This workshop created awareness about computer crimes and taught students how to prevent them.
8. Business Intelligence Course: Worked on the development of an undergraduate course. This course teaches students skills in database management, statistical analysis, as well as data mining. It prepares them for advanced data analysis for application to business problems.

2004-2005

1. Created curriculum on Security Risk Analysis and Security Policies in collaboration with CERIAS at Purdue University. The distance delivery versions of the courses will be offered using WebCT Vista hosted at Purdue University.
2. Developed a joint MBA program in collaboration with College of Nanoscale Science and Engineering (CNSE). This project was the joint work of Sanjay Goel and Paul Leonard from the School of Business (SOB) and Pradeep Haldar from CNSE. The program has been approved through the University and SUNY review committees and is being offered from Fall 2006.

2003-2004

1. Developed a new course on information security risk analysis that was delivered to students the university and professionals from state agencies.
2. Developed concept of teaching hospital wherein live problems from industry and the state are brought into the security laboratories and abstracted into cases for teaching security.
3. Developed teaching laboratories for security education in the current MIS curriculum. Created a network environment in the computer lab to support the exercises in computer security developed for the students.
4. Participated in a webcast development for information security risk analysis with Computer Associates and Ernst & Young consulting firms.

2002-2003

1. Developed a graduate level Communications, Networking, and Computer Security course, which is a part of the core MSIS curriculum. Introduced students to networking concepts and Network Security Risks. Curriculum also included Hacker Attacks, Cryptography & Steganography.
2. Developed a new format for teaching in which the classroom teaching is coupled with immersion classes on specific topics that are at an advanced level. This allows the more progressive students to reach their full potential and provides choices to students. Taught immersion classes on Security Programming and Network Penetration Testing.
3. Teamed up with OSC security lab to offer Network Penetration Testing labs for SUNY students and members of the state agencies. In the first such class taught graduate and undergraduate MIS students as well as officers from the NY State Police Forensics Division. Devised plan to offer a series of courses on penetration testing, security auditing and protection.
4. Redesigned and taught course on Enterprise-wide Application Development. In the course students develop an innovative idea for an electronic business, develop a business plan and then implement their businesses using a three-tier architecture. The class teaches emerging technology areas like XML and P2P architecture.
5. Designed a lecture series on critical thinking for improving the reading, writing and presentation skills of the MBA students. Taught at the boot camp for incoming MBA students and presented a follow up lecture on critical thinking to the Business School students every semester.

2001-2002

1. Developed Enterprise Application Module (50%) for the MSI 602 course. Students were taught to develop n-tier systems for different e-Commerce applications using Java Technology.
2. Developed a module (33%) on Computer Security as a part of the graduate core course. This module introduced the students to various security threats and technologies for making systems more secure. Also covered Security Policies, PKI, Cryptography, Steganography, and Security Programming.
3. Developed a combined Networking and Security module (33%) for the MSI 416 undergraduate course. Introduced students to networking concepts and Network Security Risks. Curriculum also included Hacker Attacks, Cryptography & Steganography.
4. Toolled the HRIS lab and MIS lab to provide support for Enterprise Application development and Security Programming as well as providing a UNIX platform for the students
5. Developed the MSI 572 course for Java Programming. Students learn basic Java Programming in this course.
6. Modified the existing MSI 520 Database Course to cover database theory as well as application.

Student Advisement and Mentorship (If Dissertation: C= Chair, M= Committee Member)

Doctoral Students:

Sairam Chinnam (Ph.D. Student)

Topic: Analyzing SNMP Data for Detecting Denial-of-Service Attacks (C)

Progress: Proposal Defense Fall '10

Damira Pon (Ph.D. Student)

Topic: Biological Models of Security (C)

Progress: Proposal Defense Fall '10

Vicki Chen (Ph.D. Student)

Topic: Information Security Risk Analysis (C)

Progress: Research Plan

Laura Iwan (Ph.D. Student)

Topic: Deception (C)

Progress: Research Plan

Prahalad Rangan (Ph.D. Student)

Topic: Immune System Modeling of Security (M)

Progress: Dissertation Defense Spring '09

Undergraduate Students:

Richelle Oakley (Undergraduate Student)

Topic: Research on Complexity Reduction in Optimization Problems.

Program: Ronald McNair Program (Summer 2002)

Results: Paper was written and presented at the McNair Symposium

Student: Daren Pon (Undergraduate Student)

Topic: Dirty Money (Spring 2007- Spring 2010)

Program: Undergraduate Research Initiative

SERVICE

Chair & Editorships

Role: Conference Chair

Conference: Nanosensors 2010, Date TBD, Canada.

Role: Technical Program Chair

Conference: 4th International ICST Conference on Nano-Networks (Nano-Net 2009), October 18-21, 2009, Luzern, Switzerland.

Role: Conference Chair

Conference: International Conference on Digital Forensics and Cyber Crime (ICDF2C), September 30 – October 1, 2009. Holiday Inn Albany on Wolf Rd, Albany, NY.

Role: Technical Program Committee Chair

Workshop: IEEE Workshop on Nano, Molecular, and Quantum Communications (NanoCom 2009) in conjunction with the International Conference on Computer Communications and Networks (ICCCN 2009), August 2-6, 2009, San Francisco, CA.

Role: Symposium Chair

Conference: 4th Annual Symposium on Information Assurance (academic track of the NYS Cyber Security Conference), June 3-4, 2009, Albany, NY.

Role: Workshop Chair

Workshop: Workshop on Nanosensors: Self-Organization and Swarm Robotics (held as a part of the 3rd International ICST Conference on Nano-Networks (Nano-Net 2008), September 14, 2008, Boston, MA.

Role: Conference Chair

Conference: Conference on Information Science Technology and Management (CISTM '08), July 31 - August 2, 2008. Indian Institute of Technology Delhi (IITD), New Delhi, India.

Role: Symposium Chair

Conference: 3rd Annual Symposium on Information Assurance (academic track of the NYS Cyber Security Conference), June 4-5, 2008, Albany, NY.

Role: Session Chair, Information and Security

Conference: The 27th International Symposium on Forecasting, June 24-27, 2007. Marriott Marquis, Times Square, New York, NY.

Role: Symposium Chair

Conference: 2nd Annual Symposium on Information Assurance (academic track of the NYS Cyber Security Conference), June 6-7, 2007, Albany, NY.

Role: Track Chair: Economics of Security

Conference: The 6th Annual Security Conference, April 11-12, 2007, Las Vegas, NV.

Role: Symposium Chair

Conference: Symposium on Information Assurance (academic track of the NYS Cyber Security Conference), June 14-15, 2006, Albany, NY.

Role: Co-Chair (Goel, S., Talya, S., Sampath, R.)

Conference: Special Session on Architectures for Collaborative Engineering Design, CE2005, July 25-29, 2005, Fort Worth/Dallas TX.

Role: Session Chair

Conference: International Resources Management Association Conference, May 2005, San Diego, CA.

Role: Track Chair

Track: 3-Security and Assurance: Behavior and Security

Conference: 2005 International Conference on Information Systems (ICIS '05), Dec 11-14, 2005, Las Vegas, NV.

Role: Associate Editor

Conference: 2005 International Conference on Information Systems (ICIS '05), Dec 11-14, 2005, Las Vegas, NV.

Role: Co-Guest Editor (Tayi, G., Ramanathan, R., Ravi, S.S., Goel, S.)

Journal: Information Systems Frontiers: Mobile Computing and Communications: Systems, Models and Applications, 7(2).

Reviews (Journals/Conferences)

Journals

Academy of Management Learning & Education (AMLE)

ACM Journal of Educational Resources in Computing

Communications of the ACM (CACM)

Communications of the AIS

Computer Networks

Decision Sciences

Decision Support Systems (DSS)

IEEE Systems Man and Cybernetics: Special Issue on Secure Knowledge Management

Information Systems Research

International Journal of Ecommerce Research

International Journal of Electronic Commerce

Journal of Data and Information Quality

Journal of Electronic Commerce Research

Journal of Information System Security

Journal of Management Information Systems (JMIS)

Journal of Network and System Management

Journal of Strategic Information Systems

Journal on Information Quality

Wiley Interscience Wireless Communications and Mobile Computing Journal

Conferences

Artificial Neural Networks in Engineering

Globecom

Hawaiian International Conference on Systems Sciences (HICSS)

IEEE Information Assurance Workshop at West Point

IEEE International Conference on Communications

International Conference on Information Systems

NYS Cyber Security Conference

Participation in Professional Organizations

- Member, Information Systems Security Association (ISSA)
- Member, USENIX- The Advanced Computing System Association
- Member, Institute of Electrical Electronics Engineers (IEEE)
- Member, Association of Computing Machinery (ACM)
- Member, Internet Society (ISOC)
- Member, Association for Information Systems (AIS)
- Member, Information Resources Management Association (IRMA)
- Member, American Society of Mechanical Engineers (ASME)

- Member, American Institute of Aeronautics and Astronautics (AIAA)

Corporate and Non-Profit Boards

- Member, Schenectady Greenmarket Board (2008-present)
- Member, Board of Directors, Cornell Cooperative Extension Association (2008-present)
- Member, Computer Information Systems Advisory Board, Hudson Valley Community College (2004-present), 80 Vandenberg Ave., Troy, NY 12180
- Member, Public/Private Sector Cyber Security Workgroup for Education and Awareness Sector (2005-present), NYS CSCIC
- Principal Investigator, University Transportation Research Center, Region II (2005 – Present), City University of New York, 138th Street and Convent Avenue, New York, NY 10031

School and University Service

- 2007 – Present Member, Parking Appeals Board
- 2009 Member, President’s Award for Excellence in Teaching Committee
- 2007 - 2009 Speaker at University Freshmen Orientation Luncheon (for parents)
- 2007 – 2009 Volunteer, UAlbany Fountain Day
- 2002 – 2009 School of Business Commencement Marshall Ceremony
- 2002 - 2009 University Commencement Marshall (Undergraduate and Graduate Ceremonies)
- 2007-2009 Member, School of Business Commencement Speaker Selection Committee
- 2004-present Director of Research, NYS Center for Information Forensics and Assurance
- October 2008 Speaker, UAlbany Weekend
- 2007 - 2008 Member, Senate Executive Committee, Member Senate, Chair, Committee on Academic Freedom, Freedom of Expression and Community Responsibility (CAFFECOR) of University Senate. (Representative at University Senate)
- Summer 2007 Member, Honorary Degree Selection Committee
- 2007 Member, Search Committee for University at Albany Information Security Officer
- 2007, 2009 Member, University at Albany Excellence in Teaching (Full-Time) Award Review Committee.
- 2004-2008 Member, Committee on Academic Freedom, Freedom of Expression and Community Responsibility (CAFFECOR) of University Senate. Instrumental in draft and development of policy on student associations on campus.
- 2004-2008 Member, School of Business Research Committee
- 2004-2005 Chair, School of Business Research Committee
- 2004-2005 Member, Search Committee for University at Albany Information Security Officer
- 2004-2005 Member, Search Committee for Director of NYS Center for Information Forensics and Assurance
- 2004-2005 Member, University Life Council
- 2004-2005 At Large Member, University Personnel Committee
- 2004-2005 Member, School of Business Teaching and Computing Committee
- 2002-2003 Chair, School of Business Teaching and Computing Committee

Consulting Activities

- Supervised interns at the New York State Police Computer Crime lab. The American Society of Crime Laboratory Directors voted to recognize Digital Evidence as a forensic discipline. The State of New York and the New York State Police have been leaders in the development of accredited forensic laboratories, but much work needs to be done to meet this standard in

Digital Evidence. The New York State Police, the NYS Department of Taxation and Finance, and the University at Albany School of Business participated to research and develop processes, procedures, and documentation based on and required for accreditation standards in Digital Evidence (ASCLAD) - Spring 2004

- Consulted with GE Global Research Center on Peer-to-Peer Computing - Summer/Fall 2002
- Consulted with GE Global Research Center on Information Theory Applications - Fall 2002/Spring 2003

Professional Development

- Attended a Grants Workshop: "Funding Your Scholarly Work: A workshop on getting grants", Albany NanoTech/School of NanoSciences and NanoEngineering, April 2-3 2004
- Attended the Workshop on Information Assurance Education sponsored by Stony Brook and the National Science Foundation, August 5-6, 2004
- Attended Secure Knowledge Management, A Workshop sponsored by the University at Buffalo, State University of New York, September 23-24, 2004
- Attended Workshop on "Enterprise Risk Management" January 14-15, 2004", Board of Mathematical Sciences and their Applications, the National Academy of Sciences, Washington D. C.
- Attended Symposium on "5th Annual Information Security Symposium: Energizing the enterprise" Information Security In Context", Purdue University, West Lafayette, Indiana, March 23-24, 2004
- Attended Workshop on "7th Colloquium for Information Systems Security: Cyber Security Strategy: Meeting the Multinational Challenge Through Education Training and Awareness" June 3-5, 2003
- Participated in "NSF-RPI Workshop on Pervasive Computing and Networking", Rensselaer Polytechnic Institute, April 29-30, 2004
- Attended the NYS 6th Annual Cyber Security Conference, April 23-24, 2003, Empire State Plaza, Albany, NY
- Attended Master Teacher Program, 2003
- Attended Discrete Math Symposium at the University at Albany, Fall 2002