

Vasil Y. Hnatyshin, Ph.D.
Associate Professor

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TECHNICAL AND RESEARCH INTERESTS

- Service Differentiation and Quality of Service in IP and Wireless networks
- Network Management
- Computer and Network Security
- Simulation of Network Performance
- Mobile ad hoc Networks
- Wireless Technology
- Distributed Systems
- Intelligent Software Agents
- Object-Oriented Languages

EDUCATION

- **Ph.D. in Computer and Information Sciences, August 2003**
University of Delaware – Newark, DE
- **M.S. in Computer Science, May 1999**
University of Delaware – Newark, DE
- **B.S. in Computer Science, Minor in Mathematics (Suma Cum Laude), May 1997**
Widener University – Chester, PA

WORK EXPERIENCE

- **Associate Professor:** Department of Computer Science, Rowan University, Glassboro, NJ, Fall 2008 – to date.
- **Assistant Professor:** Department of Computer Science, Rowan University, Glassboro, NJ, Fall 2003 – Spring 2008.
- **Software engineer:** Ericsson IP Infrastructures, Rockville, MD, Summer 2001
- **Associated Technician,** Internship program at SmithKline Beecham, Gulf Mills, PA, June 1996 – December 1996
- **VAX Manager,** Computer Laboratory, Widener University, June 1995 – May 1997

TEACHING EXPERIENCE

- **Associate Professor:** Department of Computer Science, Rowan University
 - Taught the following courses:
 - *Advanced Design and Analysis of Algorithms*, (graduate course)
 - *Network Security*, (graduate course)
 - *Advanced TCP/IP and Internet Protocols*, (graduate course)
 - *Computer Networks*, (graduate course)
 - *TCP/IP and Internet Protocols*, (Wireshark, OPNET IT Guru and Modeler)
 - *Data Communications and Computer Networks*, (Wireshark, OPNET IT Guru and Modeler)

- *Computer Organization*, (MIPS, assembly language)
 - *Data Structures and Algorithms*, (C/ C++ and Java)
 - *Object Oriented Programming and Data Abstraction*, (Java)
 - *Introduction to Object-Oriented Programming*, (Java)
 - *Computer Science and Programming*, (C/C++)
 - *Introduction to Scientific Programming*, (Visual Basic)
 - *Introduction to Programming*, (Visual Basic)
- **Laboratory Instructor:** Department of Computer and Information Science, University of Delaware, Newark DE, Fall 1997 – Summer 1998
 - **Instructor,** Widener University, January 1997 – May 1997
 - **Tutor,** Math Center, Widener University, September 1994 – May 1997

FUNDED GRANT PROJECTS:

- **Mission Solutions Engineering (Iris Project phase I)**, PI: Vasil Hnatyshin, co-PI: Ganesh Baliga, Jenifer Kay, 10/12 – 1/31/13, \$10,631
- **Mission Solutions Engineering (Iris Project phase II)**, PI: Vasil Hnatyshin, co-PI: Ganesh Baliga, Jenifer Kay, 2/1/13 – 5/31/13, \$50,131
- **Mission Solutions Engineering (Multi-cursor Project)**, PI: Vasil Hnatyshin, co-PI: Ganesh Baliga, Jenifer Kay, 6/1/13 – 8/31/13, \$36,991
- **Bristol-Myers Squibb** (Using Statistical & Machine Learning Techniques for analysis of pharmaceutical data), PI: Umashanger Thayasivam (Department of Mathematics), co-PI: Vasil Hnatyshin, 6/1/13 – 9/30/13, \$40,000
- **OPNET Technologies Inc. / Riverbed Technology Inc.**, PI: Vasil Hnatyshin, Software License Grant which includes 30 license blocks for several different software products such as IT Guru and Modeler, and modules such as WiMax (802.16), IPv6, Wireless, Terrain Modeling, and MPLS. Total of 240 software licenses have been awarded, Fall 2013 – to date.
- **Rowan University Seed Funding Award (Applications of Statistical and Machine Learning Data Mining Techniques to Network Security and Forensics)**, PI: Vasil Hnatyshin, co-PI: Umashanger Thayasivam (Dept. of Mathematics), 7/1/13 – 6/31/13, \$10,000

BOOKS:

1. Adarshpal S. Sethi and Vasil Y. Hnatyshin "The Practical OPNET User Guide for Computer Network Simulation," 527 pages, Chapman and Hall/CRC (August 24, 2012), ISBN-10: 1439812055, ISBN-13: 978-1439812051

REFEREED PUBLICATIONS (chronological order):

1. S. Gennaoui, J. Yin, S. Swinton, and V. Hnatyshin, "Investigation and Comparison of MPLS QoS Solution and Differentiated Services QoS Solutions", In Proc. of International Conference OPNETWORK 2013, Session 1540: Customer Presentations: High-Speed Switching, Optical Networks and QoS, Washington DC, August 2013
2. S. Akhter, J. Myers, C. Bowen, S. Ferzetti, P. Belko, and V. Hnatyshin, "Modeling DDoS Attacks with IP Spoofing and Hop-Count Defense Measure Using OPNET Modeler", In Proc. of International Conference OPNETWORK 2013, Session 1538: Customer Presentations: Specialized Topics in Simulation, Washington DC, August 2013
3. J. Wakemen, M. Hodson, P. Shafer, and V. Hnatyshin, "Using High-Powered Long-Range ZigBee Devices for Communication During Amateur Car Racing Events", in Proc. of International Conference on Wireless Communications, Vehicular Technology, Information

- Theory and Aerospace and Electronic Systems Technology (WirelessVITAE-2013), Global Wireless Summit 2013, Atlantic City, NJ June 2013.
4. R. Hussey, E. Huff, Z. Shinwari, and V. Hnatyshin, "A Comparative Study of Proactive and Reactive Geographical Routing Protocols for MANET," in Proc. of the 12th International Conference on Wireless Networks (ICWN' 13), July 22-25, 2013, Las Vegas, USA (PDF)
 5. Vasil Hnatyshin, "Improving MANET Routing Protocols Through The Use Of Geographical Information," International Journal of Wireless & Mobile Networks (IJWMN), Vol. 5, No. 2, April 2013, DOI : 10.5121/ijwmn.2013.5201
 6. Vasil Hnatyshin, Remo Cocco, Malik Ahmed, Dan Urbano, "Dynamically Adjusting the Request Zone in GeoAODV Protocol," In Proc. of OPNETWORK 2012 International Conference, Washington, DC, August 2012 - received distinguished paper award.
 7. Remo Cocco, Vasil Hnatyshin, Malik Ahmed, Dan Urbano, "Improving Geographical AODV Protocol by Dynamically Adjusting the Request Zone," 35th IEEE Sarnoff Symposium, Newark, NJ 2012.
 8. V. Hnatyshin, M. Ahmed, R. Cocco, and D. Urbano, "A Comparative Study of Location Aided Routing Protocols for MANET", Proc. of 4th IEEE/IFIP Wireless Days 2011 conference, Niagara Falls, Canada.
 9. V. Hnatyshin and H. Asenov, "Design and Implementation of an OPNET model for simulating GeoAODV MANET routing protocol", OPNETWORK 2010, Session 1558: Wireless Ad Hoc and Wireless Personal Area Networks, Washington DC, August 2010
 10. V. Hnatyshin, H. Asenov, J. Robinson, "Practical methodology for modeling wireless routing protocols using OPNET Modeler", In Proc. of 21st International Conference on Modeling and Simulation (MS 2010), July 15 - 17, 2010, Banff, Alberta, Canad.
 11. H. Asenov, V. Hnatyshin, and A. Fabian, "OPNET implementation of the GeoAODV routing protocol", poster presentation at the Consortium for Computing Sciences in Colleges 25th Annual Eastern Conference , Villanova University, Villanova, PA, October, 2009.
 12. H. Asenov, and V. Hnatyshin, "GPS-Enhanced AODV routing," in Proc. of the 2009 Int'l Conference on Wireless Networks (ICWN'09), Las Vegas, Nevada, (July 13-16, 2009).
 13. V. Hnatyshin and A. Lobo, "Undergraduate Data communications and Networking Projects Using OPNET and Wireshark Software," Inroads: SIGSCE Bulletin, Vol. 40, No 1, pp. 241 - 245, March 2008.
 14. V. Hnatyshin and M. Simmons, "Practical Methodology for Development and Deployment of Standard Applications Process Models using OPNET Modeler," in Proc. of OPNETWORKS 2007, Session 1558: Advanced Simulation Technology. Washington, DC, August 2007.
 15. V. Hnatyshin, G. Gramatges, and M. Stiefel, "Practical Considerations for Extending Network Layer Models with OPNET Modeler", in Proc. of IASTED International Conference on Modeling and Simulation (MS 2007), May – June 2007.
 16. V. Hnatyshin, A. Lobo, P. Bashkirtsev, R. DeDomenico, A. Fabian, G. Gramatges, J. Metting, M. Simmons, and M. Stiefel, "Modeling a University Computer Laboratory using OPNET Software", in Proc. of 14th Int'l Conference on Telecommunication Systems: Modeling and Analysis (ICSTM06), pp. 211 - 218, October 5-8, 2006, Reading PA.
 17. V. Hnatyshin and A. S. Sethi, "Bandwidth Distribution Scheme for Dynamic, Scalable, and Fair Allocation of Bandwidth," International Journal of Network Management (Wiley), Volume 16, Issue 5, September/October 2006, pp 317- 336.
 18. V. Hnatyshin, J. Ogren, J. Pucci, and C. Clement, "Influence of the discarding the out-of-profile packets policy on TCP traffic," In Proceedings of the 2005 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'05), Volume 3, pages 1215 - 1221, Las Vegas, NV, June, 2005.

19. V. Hnatyshin and A. S. Sethi, "Estimation Based Load Distribution in the Internet," *Computer Networks*, Volume 48, Issue 4, 15 July 2005, Pages 525-547.
20. V. Hnatyshin and A. S. Sethi, "*Scalable Architecture for Providing Per-flow Bandwidth Guarantees*," Proceedings of the IASTED conference on Communications, Internet and Information Technology (CIIT 2004), St. Thomas, Virgin Isles, November 2004.
21. V. Hnatyshin and A.S. Sethi, "*Optimization of the Bandwidth Distribution Scheme for Handling Topology Changes*," Proc. IPCCC'04, Phoenix, AZ, April 2004.
22. V. Hnatyshin and A.S. Sethi, "*Reducing load distribution overhead with message aggregation*," Proc. IPCCC'03, Phoenix, AZ, April 2003.
23. V. Hnatyshin and A.S. Sethi, "*Fair and Scalable Load Distribution in the Internet*," Proc. 3rd International Conference on Internet Computing, Las Vegas, NV (June 2002).
24. V. Hnatyshin and A.S. Sethi, "*Achieving Fair and Predictable Service Differentiation Through Traffic Degradation Policies*," Proc. SPIE QoS 2001, Conference on Quality of Service over Next-Generation Data Networks, Denver, CO, Aug. 2001.
25. V. Hnatyshin and A.S. Sethi, "*Avoiding Congestion Through Dynamic Load Control*," Proc. ITCOM-2001, SPIE's International Symposium on The Convergence of Information Technologies and Communications, Denver, CO, Aug. 2001, pp. 309-323.
26. A.S. Sethi, D. Zhu, V. Hnatyshin, and P. Kokati, "*Battlefield Network Applications of the SHAMAN Management System*," Proc. MILCOM '01, IEEE Military Communications Conference, McLean, VA, Oct. 2001.
27. Vasil Hnatyshin, "*Computer Security: Research of Java Language and its Security Problems*," Proc. of Eleventh National Conference on Undergraduate Research, Austin TX, April 1997.

NON-REFEREED PUBLICATIONS

1. V. Hnatyshin and A.S. Sethi, "*Providing per-flow QoS using load distribution scheme*," TR 2002-06, Department of Computer and Information Science, University of Delaware, Newark, DE, February 2002.
2. A.S. Sethi, D. Zhu, and V. Hnatyshin, "*Hierarchical Management of Battlefield Networks with the SHAMAN Management System*," In Final Report (1996-2001) Advanced Telecommunications and Information Distribution Research Program (ATIRP), pp. 7.1-7.28, US Army Research Laboratory, 2001.
3. A.S. Sethi, D. Zhu, V. Hnatyshin, P. Kokati, D.-P. Hsing, and L. Kant, "*Application of the SHAMAN Management System to Configuration Management of Tactical Internets*," Proc. Fifth ARL/ATIRP Annual Conference, College Park, MD, March 2001.
4. A.S. Sethi, K. Sivakumar, V. Hnatyshin, M. Humphrey, B. Rivera, "*Integrating SHAMAN Management Applications with Battlefield OPNET Simulations*," Proc. of ARL Federal Laboratory 4th Annual Symposium, College Park, MD, March 2000.

SELECTED PRESENTATIONS

1. Vasil Hnatyshin, "*OPNET Software for Teaching and Research at Rowan University*", Session 1020, International Conference OPNETWORK 2012 in Washington DC, August 2012.
2. Vasil Hnatyshin, "*Academic Instruction using OPNET Software*", Session 1020, International Conference OPNETWORK 2011 in Washington DC, August 2011.
3. V. Hnatyshin "*Using OPNET software at Rowan University*", invited presentation at Academic Instruction using OPNET software session during OPNETWORK 2010 conference, Washington DC, August 2010
4. University of Delaware, SIGNET group seminar, "*Improving AODV route discovery through GPS coordinates*", November 3rd, 2010 (PDF)

5. Widener University, Computer Science club meeting "*Opportunities after graduation: Master's degree?*" October, 2010 (PDF)
6. Invited panelist and presenter during "*The Interplay of Simulation and Testbed*" session at TRIDENTCOM 2009, the 5th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities, April 2009, Fairfax, VA.
7. Vasil Hnatyshin, "*Supporting Quality of Service in the Internet*", presentation at the Computer Science Colloquium, Feng Chia University, Taichung, Taiwan. June 6, 2006.
8. Vasil Hnatyshin, "*Bandwidth Distribution Scheme*," Mathematics and Computer Science Departments Colloquium, Spring 2006.
9. Vasil Hnatyshin, "Teaching with OPNET software", session 1020: "Academic and Professional Instruction using OPNET Software", OPNETWORK 2005 conference, Washington DC, August 2005.
10. Vasil Hnatyshin, "*Supporting per-flow QoS using the Bandwidth Distribution Scheme*," Computer Science Department, Rowan University, Fall 2004.
11. Vasil Hnatyshin, "*Quality of Service in the Internet*," Presented at Rowan University Computer Science Seminar and Widener University Science Seminar, December 2003.
12. Vasil Hnatyshin, "*Providing fair and scalable per-flow Quality of Service through the load distribution techniques*," Presented at the University of Delaware Special Interests Group in Networking meeting, November 2002.
13. Vasil Hnatyshin, "*Differentiated Services: A new Approach to QoS for the Internet*", Presented at the University of Delaware Special Interests Group in Networking meeting, October 1999.