

John Alan Bivens II

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Objective: Full time position in a Research and Development Laboratory

Research Interest: Computer Networking, Network Congestion Control, Soft Computing, Intrusion Detection, Network Security, Mobile Agents, Artificial Intelligence, Distributed Computing, and Distributed Systems

Education:

- **PHD, Computer Science;** Rensselaer Polytechnic Institute, December 2002.
- **MS, Computer Science;** Rensselaer Polytechnic Institute May 1999, May 3.83/4.0.
- **BS, Computer Science;** University of Alabama, May 1997; GPA: 3.78/4.0. Graduated with honors: Magna Cum Laude

Professional Experience:

IBM Corporation - T.J. Watson Center, NY. Research Analyst and Developer. (May – September) 2001,2000,1999,1998

- Implemented generic security sockets replacing normal sockets
- Created security architecture using LDAP, SSL/TLS, JAVA, and C++
- Created IP test-bed for wide-area simulations using ipshapers
- Implemented application server benchmarking tools
- Designed ways to facilitate stable usage of over-committed access lines.
- Lead Conversion of (Mainframe) Warehouse Applications to (Client-Server) Lotus Notes.

Rensselaer Polytechnic Institute - Computer Science Department. Instructor 1999-pres

- Teach Graduate Class “Introduction to Computer Science Research”

ProductivityNet - Consultant. 2000-2002

- Designed and implemented network monitoring architecture for their application
- Design SNMP MIB browser with heuristic detection methods

Rensselaer Polytechnic Institute - Computer Science Department. Research Assistant (May - August) 1998

- Lead data collection project for DARPA Sponsored Project "Pro-active Problem Avoidance and QoS Guarantees for Large Heterogeneous Networks," F30602-97-C-0274
- Designed and deployed DOOR prototype on Lucent Technologies network. (using CORBA, MOBILE AGENTS, and SNMP).

EXXON COMPANY USA - Houston, TX. Systems Programmer and Infrastructure/Architecture Developer. (May – August) 1996

- Designed installation programs for SAP R/3,
- Piloted automated testing tool, AutoTester, implementation.

University of Alabama: College of Engineering. Research assistant. 1995 - 1997

- Designed application to analyze and improve the efficiency of database queries.
- Designed Internet simulation using socket programming.

Publications:

- “The Genesis Project: Network Decomposition in Monitoring and Simulation for Network Management and Intrusion Detection”; Boleslaw K. Szymanski, Alan Bivens, Yu Liu, Kiran Madnani, and Anand Sastry (2002), Virtual World Simulation Proceedings, 2002.
- "Network Congestion Arbitration and Problem Source Prediction"; J. Alan Bivens, Mark J. Embrechts, and Boleslaw K. Szymanski (2002), submitted per invitation to International Journal of Smart Engineering System Design, 2002.
- "Forecasting and Mitigating Network Congestion using Neural Networks"; J. Alan Bivens, Mark J. Embrechts, and Boleslaw K. Szymanski (2000) "5th Online World Conference on Soft Computing in Industrial Applications (WSC5), September 4 - 18, 2000.
- "Network Congestion Arbitration and Problem Source Prediction"; J. Alan Bivens, Mark J. Embrechts, and Boleslaw K. Szymanski (2000) "ANNIE 2000: Artificial Neural Networks in Engineering"
- "Agent-Based Network Monitoring"; Alan Bivens, Patrick H. Fry, Li Gao, Mark F. Hulber and Boleslaw K. Szymanski (1999) "Agent based High Performance Computing" Workshop at "Agents '99 Conference."
- "A Distributed Object-Oriented Repositories for Network Management"; Alan Bivens, Patrick H. Fry, Li Gao, Mark F. Hulber and Boleslaw K. Szymanski (1999) "International Conference on Systems Engineering - ICSE 99."

Submitted Publications:

- “Network-Based Intrusion Detection Using Neural Networks,” Alan Bivens, Mark Embrechts, Chandrika Palagiri, Rasheda Smith, Boleslaw Szymanski (2002) Artificial Neural Networks In Engineering Nov. 10-13 2002, St. Louis, Missouri.
- “Performance of Distributed Network Data Collection using Mobile Agents,” Alan Bivens, Vivek Rao, Boleslaw Szymanski, Sunil Upalekar, Jerome White. Submitted to the Journal of Computer Communications, Elsevier Science B.V.
- “SAFE -- A Single-Sign-on Authentication for Everyone,” Reiner Sailer, James Giles, Suresh Chari, Dinesh Verma, Alan Bivens (2002) 18th Annual Computer Security Applications Conference, Dec. 9-13, 2002, Las Vegas, Nevada.

Manuscripts Under Preparation:

- “Optimization of Network Parameters using Genetic Algorithms and Neural Network Modeling,” Alan Bivens, Mark Embrechts, and Boleslaw Szymanski, to be submitted to IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews.
- “Scalability of Distributed Network Management and Data Collection, an Efficient Study,” Alan Bivens, Rashim Gupta, Ingo McLean, Vivek Rao, Boleslaw Szymanski, Sunil Upalekar, and Jerome White, to be submitted to INFOCOM 2003, San Francisco Mar. 30-Apr. 3 2003.
- “Clustering Approaches for Anomaly Based Intrusion Detection,” Rasheda Smith, Alan Bivens, Mark Embrechts, Chandrika Palagiri, and Boleslaw Szymanski, to be submitted to The First Annual Walter Lincoln Hawkins Graduate Research Conference, Troy, New York, October 17, 2002.
- “Denial of Service Intrusion Detection using Time-Dependent Finite Automata,” Joel Branch, Alan Bivens, Chi Yu Chan, Taek Kyeun Lee, Rasheda Smith, and Boleslaw Szymanski, to be submitted to The First Annual Walter Lincoln Hawkins Graduate Research Conference, Troy, New York, October 17, 2002.
- “Probabilistic Finite Automata for User Signatures and Intrusion Detection,” Seth Freeman, Alan Bivens, Joel Branch, and Boleslaw Szymanski, to be submitted to The First Annual Walter Lincoln Hawkins Graduate Research Conference, Troy, New York, October 17, 2002.
- “Simulation and Experimentation Techniques for Scalability Evaluation,” (POSTER) Jerome White, Alan Bivens, Rashim Gupta, Ingo McLean, and Boleslaw Szymanski, to be submitted to The First Annual Walter Lincoln Hawkins Graduate Research Conference, Troy, New York, October 17, 2002.

Grants:

- Grant Proposal for Digital Data Embedding Technologies (DDET), Air Force Research Laboratory, \$1,000,000 July 2002.
- "Novel Machine Learning Techniques for Heart Magnetic Image Classification," Cardiomag Imaging, Inc, SBIR Phase I NSF Application (2002).
- Equipment Grant: Rensselaer Polytechnic Institute Voorhees Computing Center. \$1,500.00 (PI) January 2001.
- Equipment for Distributed Network Laboratory, IBM Corp., Shared University Research, \$168,000.00 October 2000.

Patents:

- Patent Applied for: "A Method and Apparatus for Single Sign-on Authentication". Alan Bivens, Suresh Chari, James Giles, Reiner Sailer, and Dinesh Verma. IBM Corporation - T.J. Watson Center. June 2002.
- Disclosure of Invention: "Detecting and Mitigating Network Problems with Learning Concepts". Alan Bivens, Mark J. Embrechts, and Boleslaw Szymanski. Rensselaer Polytechnic Institute. December 14, 1999.

Public Talks:

- "The PHD, the whole PHD, and nothing but the PHD," Alan Bivens, Rensselaer Polytechnic Institute Graduate Minority Student Weekend (Keynote Speaker), October 2002.
- "Scalable Network Management and Intrusion Detection," Alan Bivens, University of Alabama Computer Science Colloquium Series, April 2002.
- "Computer Hacking: How it is done, and how it is detected," Alan Bivens, Joel Branch, Seth Freeman, Roshawna Scales, and Rasheda Smith, Rensselaer Polytechnic Institute Family Technology Day, November 2001.
- "Graduate School: The Inside Scoop," Alan Bivens, Rensselaer Polytechnic Institute Graduate Minority Student Weekend (Keynote Speaker), October 2001.
- "Surviving Graduate School," Alan Bivens, Rensselaer Polytechnic Institute Graduate Minority Student Weekend (Keynote Speaker), February 2001.
- "De-mystifying the Net," Alan Bivens and Quincy Stokes, Rensselaer Polytechnic Institute Family Technology Day, November 2000.
- "Agent-Based Network Monitoring," Alan Bivens, Agent based High Performance Computing Workshop at "Agents '99 Conference," May 1999.

Honors:

RPI:

- IBM Research Fellowship
- Gates Millennium Scholars Fellow
- Sigma Xi Associate member
- Founders Award
- NSF Graduate Fellowship Award

University of Alabama:

- The Autherine Lucy Foster Award (Leadership and Academics)
- The William Bloom Award (University Premiere Award: Leadership)
- The Morris Mayer Award (University Premiere Award: Leadership and Academics)
- Alumni Leadership Award (Leadership)
- Presidential Scholarship

Activities:

RPI:

- RPI Instructor of STEP course “Computer Assembly”
- RPI Instructor of STEP course “Computer Networking”
- RPI Instructor of STEP course “Computer Programming”
- Graduate Minority Student Weekend Planning Committee 2002
- Office of Minority Student Affairs Chair Search Committee 2002
- Department Chair Search Committee 2000 - 2001
- Faculty Search Committee 2000-pres
- Computer Science Graduate Admissions Committee 1999 – 2001
- Basketball (Captain), Volleyball (Captain), and Softball teams

University of Alabama:

- President, Vice-President, Secretary of African American Association 94-97
- President UPE (Computer Science Honorary) 96-97
- Vice-President of Engineering Executive Council 96
- Vice-Chairman of Council of Presidents 96-97

Professional Activities

- **General Co-Chair:** The First Annual Walter Lincoln Hawkins Graduate Research Conference 2002
- **Reviewer for:** IEEE Infocom 2002, IEEE Journal on Selected Areas in Communications 1st Quarter 2002, International Journal of Smart Engineering System Design 2002.
- **Member:** IEEE, IEEE Computer Society, and IEEE Communications Society

Relevant Skills

- Languages: Java, C++, C, Visual Basic, COBOL, ADA, ASSEMBLY, PASCAL, Lotus Notes, CVS
- Protocols: SNMP, CORBA, ASN.1 (MIB), LDAP, SSL, Cisco IOS, HTTP, TCP/IP
- System Administration: Linux, FreeBSD, and Windows systems ; Networking hardware, Lab construction and maintenance.

References:

Dr. Boleslaw Szymanski

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