

Curriculum Vitæ

Research Interests Wireless sensor networks, security and privacy, embedded systems, distributed computing, smart healthcare, ad hoc and mesh networks, and ubiquitous computing

Education

Ph.D. in Computer Science, expected Spring 2008
University of Virginia, Charlottesville, VA

- Thesis: “*Adaptive Defenses for Physical- and Routing-Layer Denial-of-Service Attacks in Wireless Sensor Networks*”
- Advisor: John A. Stankovic

M.C.S. in Computer Science, May 2003
University of Virginia, Charlottesville, VA

- Project: *A Mapping Service for Jammed-Regions in Sensor Networks*

B.S. in Computer Science, May 1998
Virginia Tech, Blacksburg, VA

- Summa Cum Laude, University Honors Program

Honors

Best Paper Award for SIGF at SASN 2006
Best Presentation Award at RTSS Ph.D. Forum 2007

Publications

Major Papers

- Leo Selavo, **Anthony D. Wood**, Qihua Cao, Tamim Sookoor, Hengchang Liu, Aravind Srinivasan, Yafeng Wu, Woochul Kang, John A. Stankovic, Don Young, John Porter, “*LUSTER: Wireless Sensor Network for Environmental Research*,” in The 5th ACM Conference on Embedded Networked Sensor Systems (SenSys), Sydney, Australia, November 2007. (17% accepted)
- **Anthony D. Wood**, John A. Stankovic, Gang Zhou, “*DEEJAM: Defeating Energy-Efficient Jamming in IEEE 802.15.4-based Wireless Networks*,” in The Fourth Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), San Diego, CA, June 2007. (20% accepted)
- **Anthony D. Wood**, Lei Fang, John A. Stankovic, Tian He, “*SIGF: A Family of Configurable, Secure Routing Protocols for Wireless Sensor Networks*,” in The Fourth ACM Workshop on Security of Ad Hoc and Sensor Networks (SASN), Alexandria, VA, October 2006. (**Best paper award**)
- Tarek Abdelzaher, Brian Blum, Qihua Cao, Yong Chen, David Evans, Joshua George, Selvin George, Lin Gu, Tian He, Sudha Krishnamurthy, Liqian Luo, Sang Son, John A. Stankovic, Radu Stoleru, **Anthony D. Wood**, “*EnviroTrack: Towards an Environmental Computing Paradigm for Distributed Sensor Networks*,” in IEEE International Conference on Distributed Computing Systems (ICDCS), Tokyo, Japan, March 2004. (74 citations, 18% accepted)
- **Anthony D. Wood**, John A. Stankovic, Sang H. Son, “*JAM: A Jammed-Area Mapping Service for Sensor Networks*,” in Real-Time Systems Symposium (RTSS), Cancun, Mexico, December 2003. (45 citations, 17% accepted)
- Brian Blum, Prashant Nagaraddi, **Anthony D. Wood**, Tarek Abdelzaher, Sang Son, John A. Stankovic, “*An Entity Maintenance and Connection Service for Sensor Networks*,” in The First International Conference on Mobile Systems, Applications, and Services (MobiSys), San Francisco, CA, May 2003. (40 citations, 18% accepted)
- **Anthony D. Wood**, John A. Stankovic, “*Denial of Service in Sensor Networks*,” IEEE Computer, 35(10):54-62, October 2002. (**370 citations**)

Book Chapters

- **Anthony D. Wood**, John A. Stankovic, “*Security of Distributed, Ubiquitous, and Embedded Computing Platforms*,” to appear in Wiley Handbook of Science and Technology for Homeland Security, John G. Voeller, ed., John Wiley & Sons, Hoboken, NJ, 2008. (Invited chapter)
- **Anthony D. Wood**, John A. Stankovic, “*A Taxonomy for Denial-of-Service Attacks in Wireless Sensor Networks*,” Handbook of Sensor Networks: Compact Wireless and Wired Sensing Systems, Ilyas and Mahgoub eds., CRC Press, 2004. (Invited chapter)
- Tarek Abdelzaher, John A. Stankovic, Sang Son, Brian Blum, Tian He, **Anthony D. Wood**, Chenyang Lu, “*Communication Architecture and Programming Abstractions for Real-Time Embedded Sensor Networks*,” Handbook of Sensor Networks: Compact Wireless and Wired Sensing Systems, Ilyas and Mahgoub eds., CRC Press, 2004. (Invited chapter)

Other Refereed Proceedings

- Gilles Virone, Thao Doan, **Anthony D. Wood**, John A. Stankovic, “*Dynamic Privacy in Assisted Living and Home Health Care*,” in Joint Workshop On High Confidence Medical Devices, Software, and Systems (HCMDSS) and Medical Device Plug-and-Play (MD PnP) Interoperability, Boston, MA, June 2007. (Short paper)
- Gilles Virone, **Anthony D. Wood**, Leo Selavo, Qihua Cao, Lei Fang, Thao Doan, Zhimin He, John A. Stankovic, “*An Advanced Wireless Sensor Network for Health Monitoring*,” in Transdisciplinary Conference on Distributed Diagnosis and Home Healthcare (D2H2), Arlington, VA, April 2006.
- John A. Stankovic, Qihua Cao, Thao Doan, Lei Fang, Zhimin He, Raghu Kiran, Shan Lin, Sang Son, Radu Stoleru, **Anthony D. Wood**, “*Wireless Sensor Networks for In-Home Healthcare: Potential and Challenges*,” in High Confidence Medical Device Software and Systems (HCMDSS) Workshop, Philadelphia, PA, June 2005.
- Tarek Abdelzaher, John A. Stankovic, Sang Son, Brian Blum, Tian He, **Anthony D. Wood**, Chenyang Lu, “*A Communication Architecture and Programming Abstractions for Real-Time Embedded Sensor Networks*,” in First International Workshop on Data Distribution in Real-Time Systems (DDRTS at ICDCS), Providence, RI, May 2003. (Invited paper)
- David Larochelle, Karl Scheidt, Kevin Sullivan, Yuan Wei, Joel Winstead, **Anthony D. Wood**, “*Join Point Encapsulation*,” in Workshop on Software-Engineering Properties of Languages for Aspect Technologies (SPLAT) at AOSD 2003, Boston, MA, March 2003. (18 citations)

Short Abstracts

- **Anthony D. Wood**, John A. Stankovic, “*Human in the Loop: Distributed Data Streams for Immersive Cyber-Physical Systems*,” in Real-Time Systems Symposium (RTSS) Ph.D. Forum, Tucson, Arizona, December 2007. (**Best presentation award**)
- **Anthony D. Wood**, John A. Stankovic, “*Poster Abstract: AMSecure—Secure Link-Layer Communication in TinyOS for IEEE 802.15.4-based Wireless Sensor Networks*,” in The 4th ACM Conference on Embedded Networked Sensor Systems (SenSys), Boulder, CO, November 2006.

Technical Reports

- **Anthony D. Wood**, Leo Selavo, John A. Stankovic, “*SenQ: An Extensible Query System for Streaming Data in Heterogeneous Interactive Wireless Sensor Networks*,” Technical Report CS-2008-1, Department of Computer Science, University of Virginia, 2008.
- **Anthony D. Wood**, Gilles Virone, Thao Doan, Qihua Cao, Leo Selavo, Yafeng Wu, Lei Fang, Zhimin He, Shan Lin, John A. Stankovic, “*ALARM-NET: Wireless Sensor Networks for Assisted-Living and Residential Monitoring*,” Technical Report CS-2006-11, Department of Computer Science, University of Virginia, 2006.

Electronic publications are available at <http://www.cs.virginia.edu/wood> or by request.

- Teaching Experience**
- Graduate Seminar Presentations** in six CS 651/851 courses
2001 — 2007, Professors: Stankovic, Evans, Sullivan
- Presented work from the literature to students, and led discussion and critical analysis.
- Teaching Assistant** for CS 588: Cryptology—Principles and Applications
Fall 2001, Professor: David Evans
- Created problem sets, graded assignments, led study sessions, and helped students.
- Completion of Teaching Skills Seminar** for TAs (ENGR 897)
Fall 2001, Led by: William B. McAllister
- Developed a teaching mantra, administered TA evaluation, and surveyed learning styles.
- Presentations**
- Research-related presentations:
- “*Human in the Loop: Distributed Data Streams for Immersive Cyber-Physical Systems*,” at RTSS Ph.D. Forum, Dec. 2007. (Best presentation award)
 - “*Adaptive Defenses for Denial-of-Service Attacks in WSNs*,” for ETRI visit to UVA, Nov. 2007.
 - “*Wireless Sensor Networks*,” for SAIC visit to UVA, Aug. 2007.
 - “*DEEJAM: Defeating Energy-Efficient Jamming in IEEE 802.15.4-based Wireless Networks*,” at SECON, June 2007.
 - “*Wireless Sensor Networks for Assisted-Living and Residential Monitoring*,” at VCGS Graduate Student Research Forum, Feb. 2007. (Invited poster)
 - “*AMSecure—Secure Link-Layer Communication in TinyOS for IEEE 802.15.4-based Wireless Sensor Networks*,” at SenSys, Nov. 2006. (Poster)
 - “*SIGF: A Family of Configurable, Secure Routing Protocols for Wireless Sensor Networks*,” at SASN, Oct. 2006.
 - “*Dust to Doctors: WSN for Medical Applications*,” for Mitre visit to UVA, Oct. 2006.
 - “*JAM: A Jammed-Area Mapping Service for Sensor Networks*,” at RTSS, Dec. 2003.
- Professional Experience**
- Research Assistant**, Dept. of Computer Science, University of Virginia, Charlottesville, VA
January 2002 — present
- Led design teams for AlarmNet and LUSTER wireless sensor network systems for assisted-living and environmental research.
 - Wrote over 35K lines of embedded and simulation code for MICAz/Telos motes, Stargate gateways, and network simulators.
 - Supported research group with website re-design and maintenance, creation of collaboration wiki, mailing lists, inventory, and other service-oriented activities.
 - Wrote technical sections for funding proposals to NSF, DARPA, ARO, and Microsoft for topics in security and wireless sensor networks.
- Teaching Assistant**, Dept. of Computer Science, University of Virginia, Charlottesville, VA
August — December 2001
- Created problem sets and exams, graded assignments, led study sessions, and helped students in office hours for Professor David Evans.
- Senior Engineer**, Comdial Corporation, Charlottesville, VA
May 1998 — August 2001
- Designed a configuration manager, code downloader, and private connection module in voice-over-IP gateway for inter-switch networking.
 - Researched H.323 gatekeepers, integrated H.323 stack into VoIP gateway product.
 - Implemented embedded control software for international ISDN-BRI trunk interface board.
 - Developed new call-control, E-911, and other features for digital PBX switch software.
- Smalltalk Programmer**, Software Technologies Laboratory, Blacksburg, VA
January — August 1997
- Designed components of decision support software, including data object framework.
 - Refactored production Smalltalk code for better extensibility and performance.
- Student Software Scientist**, Alphantronix, Inc., Research Triangle Park, NC
May — December 1995, May — August 1996
- Created testing specifications for Solaris hierarchical storage management product.

Service

Refereeing

Auerbach Publications, Security in RFID and Sensor Networks, 2008, chapter reviewer
ACM/IEEE Conference on Information Processing in Sensor Networks (IPSN), 2008
ACM Transactions on Information and System Security (TISSEC), 2007
International Journal on Very Large Data Bases (VLDB), 2007
Workshop on Wireless Sensor Networks for Health Care (WSNHC), 2007
IEEE Transactions on Mobile Computing (TMC), 2006, 2007
ACM Transactions on Sensor Networks (TOSN), 2004, 2005, 2006, 2007
IEEE Wireless Communications and Networking Conference (WCNC), 2005
Conference on Distributed Computing in Sensor Systems (DCOSS), 2005
IEEE Conference on Sensor, Mesh and Ad Hoc Comm. and Networks (SECON), 2004
IEEE International Conference on Communications (ICC), 2004
ACM Conference on Embedded Networked Sensor Systems (SenSys), 2003

Committees

Symposium for Graduate Research (SGR), 2008, program committee

*Other
Honors*

One of three from the School of Engineering selected to represent UVA at
the VCGS Graduate Student Research Forum
Graduated Summa Cum Laude, Virginia Tech
Dean's List, all semesters at Virginia Tech
University Honors Program, Virginia Tech
Recipient of Dean's Scholarship and Virginia Tech Alumni Scholarship
Member of Phi Beta Kappa, a national honor society
Member of Upsilon Pi Epsilon, an international honor society for the computing and
information disciplines
Member of Golden Key International Honour Society

Membership

Association for Computing Machinery (ACM)
Institute of Electrical and Electronics Engineers (IEEE)
IEEE Computer Society