Wade Trappe

Department of Electrical and Computer Engineering, and Wireless Information Network Laboratory (WINLAB) Rutgers, The State University of New Jersey 671 Rt. 1 South, North Brunswick, NJ 08902

Education

6/99 – 5/02	University of Maryland , College Park, MD Department of Electrical and Computer Engineering, Institute for Systems Research, and Applied Mathematics and Scientific Computation Program Ph.D. Applied Mathematics and Scientific Computing
8/96 – 5/99	University of Maryland , College Park, MD Department of Electrical and Computer Engineering, Institute for Systems Research, and Applied Mathematics and Scientific Computation Program M.S. Applied Mathematics and Scientific Computing
8/91 - 12/94	The University of Texas at Austin , Austin, TX B.A. Mathematics, with Highest Honors

Professional Experience

- *Associate Director*, Wireless Information Networking Laboratory (WINLAB), Rutgers University 2007-Present.
- *Professor*, Rutgers University. Department of Electrical and Computer Engineering and the Wireless Information Networking Laboratory. 2013-Present.
- Associate Professor, Rutgers University. Department of Electrical and Computer Engineering and the Wireless Information Networking Laboratory. 2007-2013.
- Visiting Fellow, Princeton University. Department of Electrical Engineering. Fall 2009- Present.
- Assistant Professor, Rutgers University. Department of Electrical and Computer Engineering and the Wireless Information Networking Laboratory. 2002-2007.
- *Graduate Research Assistant*, University of Maryland, Department of Electrical and Computer Engineering, and Institute for Systems Research. College Park, MD. 1998-2002.
- Engineering Intern, Dialogic Corp. (a subsidiary of Intel), Parsippany, NJ. 1997-1998.
- *Graduate Teaching Assistant,* University of Maryland, Department of Mathematics. College Park, MD. 1998. Co-designed the curriculum for a new cryptography class offered jointly by the math and computer science departments, and co-authored the accompanying textbook.
- *Research Scientist Associate*, Applied Research Laboratories, The University of Texas at Austin, Austin, TX. 1995-1996.
- *Laboratory Research Assistant*, Applied Research Laboratories, The University of Texas at Austin, Austin, TX. 1991-1994.
- Summer Intern, 3M, Austin, TX. 1990.

Awards and Honors

- *Outstanding Faculty Award*, School of Engineering, Rutgers, The State University of New Jersey, 2013. Awarded to faculty annually to recognize accomplishments of engineering faculty at Rutgers.
- *Distinguished Alumni Award*, University of Maryland Electrical and Computer Engineering Department, 2014.
- *Best Paper Award* for Suhas Mathur, Tong Jin, Nikhil Kasturirangan, Janani Chandrasekharan, Wenzhi Xue, Marco Gruteser, Wade Trappe, "*ParkNet: Drive-by Sensing of Road-side Parking Statistics*", in Proceedings of ACM Mobisys (2010).

- *Best Paper Award* for Aliye Ozge Kaya, Wade Trappe, and Mung Chiang, "P2P-ISP Cooperation: Risks and Mitigation", in Proceedings of the IEEE Global Communications Conference (Globecom), Honolulu, Hawaii, December 2009.
- *Best Paper Award* for Song Liu, Yingying Chen, Wade Trappe, Larry J. Greenstein, "Non-interactive Localization of Cognitive Radios Based on Dynamic Signal Strength Mapping", in Proceedings of the Sixth International Conference on Wireless On-demand Network Systems and Services (WONS), Snowbird, Utah, February 2009.
- *Best Paper Award, IEEE Signal Processing Society,* for "Anti-Collusion Fingerprinting for Multimedia," (awarded at the 2006 ICASSP Conference in Toulouse, France). The SPS Best Paper Award is awarded based upon the impact an article has over a time window of up to 5 years.
- *Best Paper Award, Journal of Applied Signal Processing*, for "Group-Oriented Fingerprinting for Multimedia Forensics," (awarded at the EURASIP 2005 Conference in Sept. at Antalya, Turkey). The EURASIP Best Paper Award is awarded to a single journal article from the previous year that is judged by the community to have significant technical merit and impact.
- *George Harhalakis Outstanding Systems Engineering Graduate Student*, University of Maryland, 2002. Awarded to one graduate student per year for entire graduate program at the Institute for Systems Research.
- *Graduate School Fellowship*, University of Maryland, 1996-1998. Awarded to four out of 52 entering mathematics graduate students.
- *Highest Honors*, College of Natural Sciences at The University of Texas at Austin, Fall 1994. Awarded to top 4% of graduating seniors from the college.
- *Dean's Honored Graduate*, Department of Mathematics at The University of Texas at Austin, Fall 1994. Selected as the most outstanding graduating mathematics senior from the Fall 1994 semester.
- *Research Experience for Undergraduates (REU)*, The University of Texas at Austin, under NSF Grant: Topology, Geometry, and Physics, 1993-1994. Performed research into applying matching pursuits to the numerical solution of ordinary differential equations, under the supervision of Professor Karen Uhlenbeck.
- *Junior Fellows Honors Research Program*, The University of Texas at Austin, 1992-1993. Performed research into composite wavelet and chirplet transforms, under the supervision of Professor Joseph Lakey.
- *Dean's List*, College of Engineering at The University of Texas at Austin, 1991-1992.

Professional Activities

- Chair of the Steering Committee for IEEE Transactions on Mobile Computing, January 2014 December 2016.
- Guest Editor, Special Issue on Signal Processing for Cyber-security and Privacy, IEEE Signal Processing Magazine, 2013
- Member of the Technical Program for the 2013 ICDCS (IEEE International Conference on Distributed Computing Systems)
- Member of the Technical Program, ACM Conference on Security and Privacy in Wireless and Mobile Networks, WiSec 2013.
- Member of the Technical Program for the 2013 Network & Distributed System Security Symposium (NDSS)
- Program co-Chair, ACM Conference on Security and Privacy in Wireless and Mobile Networks, WiSec 2012.
- Member of the Technical Program for the 2012 IEEE International Workshop on Information Forensics and Security (WIFS'12)
- Member of the Technical Program for the 2012 ICDCS (IEEE International Conference on Distributed Computing Systems)

- Member of the Technical Program for the 2012 ACM International Symposium on Mobile Ad Hoc Networking and Computing
- Member of the Technical Program for the 2012 Network & Distributed System Security Symposium (NDSS)
- Associate Editor, IEEE Transactions on Information Forensics and Security, 2009-2013
- IEEE Signal Processing Society Representative to the Steering Committee of the IEEE Transactions on Mobile Computing, 2009-2012
- Associate Editor, IEEE Transactions on Mobile Computing, 2008-2011.
- Member of the Technical Program for 2011 IEEE International Conference on Computer Communications (Infocom)
- Program co-Chair for the 2011 IEEE International Workshop on Information Forensics and Security (WIFS'11)
- Chair for the Poster and Demo Session for the 2010 ACM Conference on Wireless Network Security (WiSec)
- Member of the Technical Program for the 2010 ICDCS (IEEE International Conference on Distributed Computing Systems)
- Member of the Technical Program for 2010 IEEE International Conference on Computer Communications (Infocom)
- Book Review Editor for the IEEE Signal Processing Magazine, 2005-2009
- Member of the Technical Program for 2009 IEEE International Conference on Computer Communications (Infocom)
- Member of the Technical Program for 2009 Tridentcom
- Member of the Technical Program for 2009 ACM International Conference on Mobile Computing (Mobicom).
- Member of the Technical Program for 2009 European Symposium on Research in Computer Security (ESORICS).
- Member of the Technical Program for 2009 IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS).
- Member of the Technical Program for the 2009 International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities
- Member of the Technical Program for the ACM Conference on Wireless Security (WiSec), 2008.
- Member of the Technical Program for the 3rd IEEE Workshop on Networking Technologies for Software Defined Radio Networks, 2008.
- Member of the Technical Program for 2008 IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON).
- Member of the Technical Program for 2008 IEEE International Conference on Computer Communications (INFOCOM).
- Member of the Technical Program for the 2008 IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS)
- Member of the Technical Program for the 2008 IEEE International Conference on Distributed Computing Systems (ICDCS)
- Member of the National Science Foundation GENI Wireless Working Group, 2007-2008
- Member of the Technical Program for 2006 IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON).
- Member of the Technical Program for 2007 IEEE International Conference on Computer Communications (INFOCOM).
- Member of the Technical Program for the Fourth ACM Workshop on Security of Ad Hoc and Sensor Networks (SASN), 2006.
- Member of the Technical Program for the 2nd International Workshop on Wireless and Sensor Networks Security (WSNS'06)

- Member of the Technical Program for the SECRYPT 2006 International Conference on Security and Cryptography
- Member of the Technical Program for the 2004 ACM Workshop on Wireless Security
- Member of the Technical Program for the 2005 IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks
- Member of the Technical Program Committee for 2005 IEEE Wireless Communications and Networking Conference
- Organizing Committee Member for IEEE/Create-Net Conference on Testbeds and Research Infrastructure for the Development of Networks and Communities (TridentCOM) 2006.
- Reviewer for IEEE Transactions on Information Forensics and Security
- Reviewer for IEEE Transaction on Multimedia
- Reviewer for IEEE Transaction on Signal Processing
- Reviewer for IEEE Transaction on Image Processing
- Reviewer for IEEE Transaction on Communications
- Reviewer for IEEE Transaction on Networking
- Reviewer for IEEE Transaction on Wireless Communications
- Reviewer for IEEE Signal Processing Magazine
- Reviewer for IEEE Transactions on Knowledge and Data Engineering
- Reviewer for Kluwer Wireless Personal Communications
- Reviewer for EURASIP Journal on Applied Signal Processing
- Participant at the MPEG-4 Intellectual Property Management and Protection (IPMP) Meeting, La Baule, France. Presented "Dynamic M⁴: A Dynamic Multicast Key Management Scheme for Groups of Mobile Multimedia Users" to the MPEG-4 IPMP standards committee, October 2000.
- Reviewer for NSF EECS Panel (2012), NSF ProWIN Panel (2004, 2005); NSF Cybertrust Panel (2008); NSF IGERT Panel (2008), NSF ECCS Panel (2012)

Professional Affiliations

- IEEE Signal Processing Society
- IEEE Communication Society
- IEEE Computer Society
- Association of Computing Machinery (ACM)

Research Grants

- 1. "Radar Communications Spectrum Sharing System (RCS3)," W. Trappe, *DARPA*, \$70K, 2013-2014 (co-Investigator, subcontract award from Lockheed Martin).
- 2. "Spectrum Challenge," W. Trappe, DARPA, \$575K, 2013-2014 (Principal Investigator).
- 3. "EARS: Collaborative Research: Big Bandwidth: Finding Anomalous Needles in the Spectrum Haystack," W. Trappe, *National Science Foundation*, \$300K, 2012-2015. (Principal Investigator).
- "NeTS: Small: Collaborative Research: OSTARA: An Optically-based Simultaneous Transmit And Receive Architecture for Enhancing Wireless Communications," W. Trappe, *National Science Foundation*, \$100K, 2012-2015. (Principal Investigator).
- 5. "Management of RF Network and Tasking Infrastructure," W. Trappe, *DARPA*, \$123K, 2012-2013 (co-Investigator, subcontract award from Applied Communications Sciences).
- 6. "Scalable MANET-based Peer-to-Peer VoIP/Multimedia Architecture," W. Trappe, *Army CERDEC via subcontract through Battelle*, \$23K, 2012-2013. (Principal Investigator).
- "MIAMI: Mobile Infrastructures for Advancing Military Information Technologies," W. Trappe, *Army CERDEC (S&TCD)*, \$9,814,214, 2009-1014. (Principal Investigator). (Task 1 Award \$660K, Task 2 Award \$500K.)

- 8. "FIA: Collaborative Research: Mobility First: A Robust and Trustworthy Mobility-Centric Architecture for the Future Internet," D. Raychaudhuri, M. Gruteser, R. Yates, W. Trappe, Y. Zhang, R. Martin, *National Science Foundation*, \$2,730,000, 2010-2013. (Participating Investigator).
- 9. "Scenario Based Tactical Radio Channel Simulator," W. Trappe and L. Greenstein, *Navy* (via dBm subcontract), \$24K, 2011. (Principal Investigator)
- "TC: Large: Collaborative Research: AUSTIN—An Initiative to Assure Software Radios have Trusted Interactions," W. Trappe, N. Minsky, R. Wright, Y. Zhang, *National Science Foundation*, \$410K, 2009-2012. (Principal Investigator)
- 11. "Enhancing the Security of Wireless Systems through Opportunistic Secret Communications," W. Trappe and R. Yates, *Army Research Office*, \$230K, 2009-2011. (Principal Investigator)
- "Enhancing Cross-Layer Protocol Design and Experimentation via Augmentation of the ORBIT Wireless Testbed," W. Trappe, N. Mandayam, D. Raychaudhuri, *Army Research Office*, \$65K, 2008-2009. (Principal Investigator)
- "The Orbit Radio Grid as a Flexible Large-Scale Community Testbed for Next-Generation Wireless Network Research," D. Raychaudhuri, W. Trappe, M. Gruteser, E. Blossom, *National Science Foundation*, \$1,500,000, 2007-2010 (Participating Investigator)
- "CT-T: TRIESTE: A Trusted Radio Infrastructure for Enforcing Spectrum Etiquettes," W. Trappe, Y. Zhang, C. Rose, J. Park, T. Hou, J. Reed, *National Science Foundation*, \$50,000, 2007 (Principal Investigator)
- 15. "SEVILLE: Security via Lower Layer Enforcements," W. Trappe, DARPA/ATO, \$194K, 2007.
- 16. "A Roll-Call System for Asset Tracking," W. Trappe, and Y. Zhang, *National Science Foundation (STTR)*, \$75K, 2007. (Principle Investigator)
- "NeTS-PROWIN: Fingerprints in the Ether: Exploiting the Radio Channel to Enhance Wireless Security," W. Trappe, N. Mandayam and L. Greenstein, *National Science Foundation*, \$581K, 2006-2009. (Principle Investigator)
- 18. "NeTS-NOSS: PARIS: A Framework for Privacy Augmented Relaying of Information from Sensors", W. Trappe and Y. Zhang, *National Science Foundation*, \$500K, 2004-2007. (Principal Investigator).
- "ORBIT: Open-Access Research Testbed for Next-Generation Wireless Networks", D. Raychaudhuri, R. Yates, W. Trappe, M. Parashar, Y. Zhang, H. Kobayashi (Princeton), H. Schulzrinne (Columbia), S. Paul (Bell Labs), K. Ramaswamy (Thomson R&D), A. Acharya (IBM Watson), *National Science Foundation*, \$5.4M, 2003-2006, (Participating Investigator).
- 20. "Security Architectures for Current and Future Wireless Networks," W. Trappe and D. Raychaudhuri, *National Institute for Communication Technology (NICT, Japan)*, \$200K, 2002-2006. (Principal Investigator).
- "A Collusion-Resistant Multimedia Fingerprinting Framework for Information Forensics," M. Wu, K.J.R. Liu, Z. J. Wang and W. Trappe, *Air Force Research Laboratories*, \$45K subcontract, 2003-2004 (Participating Investigator)

Publications

Books:

- 1. W. Trappe and L. C. Washington, <u>Introduction to Cryptography with Coding Theory</u>. Prentice Hall, (First Edition 2001, Second Edition 2005).
- 2. K.J.R. Liu, W. Trappe, Z. J Wang, M. Wu, H. Zhao, <u>Digital Fingerprinting for Multimedia Forensics</u>, Hindawi Press, 2005.
- 3. Y. Sun, W. Trappe, K.J.R. Liu, <u>Network-Aware Security for Group Communications</u>, Springer-Verlag, 2007.
- 4. Y. Chen, W. Xu, W. Trappe, Y. Zhang, <u>Securing Emerging Wireless Systems: Lower-layer Approaches</u>, Springer-Verlag, 2008.
- 5. R. Liu and W. Trappe, Securing Wireless Communications at the Physical Layer, Springer-Verlag, 2009.

Refereed Journals:

- 1. J. Yang, Y. Chen, W. Trappe, J. Cheng, "Detection and Localization of Multiple Spoofing Attackers in Wireless Networks," in *IEEE Trans. on Parallel and Distributed Systems*, vol. 24, pg. 44-58, 2013.
- 2. R. Miller, W. Trappe, "On the Vulnerabilities of CSI in MIMO Wireless Communication Systems," in *IEEE Trans. on Mobile Computing*, vol. 8, pg. 1386-1398, 2012.
- A. O. Kaya, W. Trappe, L. Greenstein, D. Chizhik, "Predicting MIMO Performance in Urban Microcells Using Ray Tracing to Characterize the Channel," in *IEEE Trans. On Wireless Communications*, pg. 1 – 10, 2012.
- 4. S. Mathur, W. Trappe, "BIT-TRAPS: Building Information-Theoretic Traffic Privacy into Packet Streams," in *IEEE Trans. on Information Forensics and Security*, vol. 6, pg. 752-762, 2011.
- 5. Y. Zhang, Z. Wu, W. Trappe, "Adaptive Location-Oriented Content Delivery in Delay-Sensitive Pervasive Applications," in *IEEE Trans. on Mobile Computing*, vol. 10, pg. 362-376, 2011.
- 6. B. Russell, M. Littman, T. Trappe, "Integrating Machine Learning in Ad Hoc Routing: A Wireless Adaptive Routing Protocol," *Int. Journal on Commun. Systems*, vol. 24, pg. 950-966, 2011.
- S. Chen, Y. Chen, W. Trappe, "Inverting Systems of Embedded Sensors for Position Verification in Location-Aware Applications," in IEEE Trans. on Parallel and Distributed Systems, vol. 21, pg. 722-736, 2010.
- 8. S. Mathur, A. Reznik, C. Ye, R. Mukherjee, A. Rahman, Y. Shah, W. Trappe, N. Mandayam, "Exploiting the Physical Layer for Enhanced Security," in *IEEE Wireless Communications Magazine*, vol. 17, pg. 63-70, Oct. 2010.
- 9. Y. Chen, J. Yang, W. Trappe, R. Martin, "Detecting and Localizing Identity-based Attacks in Wireless and Sensor Networks," in *IEEE Trans. on Vehicular Technology*, vol. 59, pg. 2418-2434, 2010.
- 10. M. Rodoper, W. Trappe, E. Jung, "An IBC and Certificate Based Hybrid Approach to WiMAX Security," in *Journal of Communications and Networks*, vol. 11, pg. 615-625, 2010.
- 11. Z. Li, R. Yates, W. Trappe, "Achieving Secret Communication for Fast Rayleigh Fading Channels," in *IEEE Trans. on Wireless Communications*, vol. 9, pg. 2792-2799, 2010.
- 12. C. Ye, S. Mathur, A. Reznik, W. Trappe and N. Mandayam, "Information-theoretically Secret Key Generation for Fading Wireless Channels", in *IEEE Transactions on Information Forensics and Security*, vol. 5, no. 2, pg. 240-254, June 2010.
- L. Xiao, L. Greenstein, N. Mandayam, W. Trappe, "Channel-based Spoofing Detection in Frequency-Selective Rayleigh Channels," in *IEEE Transactions on Wireless Communications*, vol. 8, Issue 12, pg. 5948-5956, Dec. 2009.
- 14. P. Kamat, W. Xu, Y. Zhang, W. Trappe, "Temporal Privacy in Wireless Sensor Networks: Theory and Practice," in *ACM Transactions on Sensor Networks*, vol. 5, issue 4, pg. 1-24, Nov. 2009.
- A. O. Kaya, L. Greenstein, W. Trappe, "Characterizing indoor wireless channels via ray tracing combined with stochastic modeling," in *IEEE Transactions on Wireless Communications*, vol. 8, Issue 8, pg. 4165-4175, Aug. 2009.
- L. Xiao, L. Greenstein, N. Mandayam, W. Trappe, "Channel-Based Detection of Sybil Attacks in Wireless Networks," in *IEEE Transactions on Information Forensics and Security*, vol. 4, Issue 3, pg. 492-503, Sept. 2009.
- 17. W. Xu, W. Trappe and Y. Zhang, "Defending Wireless Sensor Networks from Radio Interference through Channel Adaptation," *in ACM Transactions on Sensor Networks (TOSN)*, vol. 4, issue 4, pg. 1-34, Aug. 2008.
- Q. Li, M. Zhao, J. Walker, Y-C. Hu, A. Perrig, and W. Trappe, "SEAR: A Secure Efficient Ad Hoc On Demand Routing Protocol for Wireless Networks," in *Security and Communication Networks*, vol. 2, issue 4, pg. 325-340, July/August 2009.
- 19. Y. Chen, K. Kleisouris, X. Li, W. Trappe, R. P. Martin, "A Security and Robustness Performance Analysis of Localization Algorithms to Signal Strength Attacks," *in ACM Transactions on Sensor Networks (ACM TOSN)*, Volume 5, Issue 1, pg. 1-37, February 2009
- 20. S. Chen, Y. Chen, Wade Trappe, "Exploiting Environmental Properties for Wireless Localization," *ACM SIGMOBILE Mobile Computing and Communications Review (MC2R)*, vol. 12, pg. 49-51, 2008.

- L. Xiao, L. Greenstein, N. Mandayam, W. Trappe, "Using the Physical Layer for Wireless Authentication in Time-variant Channels," in *IEEE Transactions on Wireless Communications*, vol. 7, pg. 2571 – 2579, July 2008.
- 22. P. Kamat, A. Baliga, W. Trappe, "Secure, Pseudonymous, and Auditable Communication in Vehicular Ad Hoc Networks," *Security and Communication Networks*, pg. 233-244, May, 2008.
- 23. Q. Li and W. Trappe, "Detecting Spoofing and Anomalous Traffic in Wireless Network via Forge-Resistant Relationships," *IEEE Trans. on Information Forensics and Security*, vol. 2, pg. 793-808, Dec. 2007.
- 24. K. Ma, Y. Zhang, W. Trappe, "Managing Mobile Sensor Networks Using Network Dynamics," *IEEE Transactions on Parallel and Distributed Computing*, vol. 19, pg. 106-120, Jan. 2008.
- 25. Q. Li and W. Trappe, "Reducing Delay and Enhancing DoS Resistance in Multicast Authentication through Multi-grade Security," *IEEE Trans. On Information Forensics and Security*, vol. 1, pg. 190-204, June 2006.
- 26. W. Xu, K. Ma, W. Trappe, Y. Zhang, "Jamming Sensor Networks: Attack and Defense Strategies," *IEEE Networks Special Issue on Sensor Networks*, vol. 20, pg. 41-47, May 2006.
- M. Wu, W. Trappe, Z.J. Wang, K.J.R. Liu, "Collusion-resistant Fingerprinting for Multimedia," *IEEE Signal Processing Magazine*, vol. 21, pg. 15-27, 2004.
- Z. J. Wang, M. Wu, W. Trappe and K.J.R. Liu, "Group Oriented Fingerprinting for Multimedia Forensics," *EURASIP Journal of Applied Signal Processing*, pg. 2153-2173, October 2004. (EURASIP Best Paper Award, 2005)
- 29. W. Trappe, M. Wu, Z. Wang, and K. J. R. Liu, "Anti-Collusion Fingerprinting for Multimedia," *IEEE Transactions on Signal Processing*, vol. 51, pg. 1069-1087, 2003. (**IEEE SPS Best Paper Award, 2005**)
- 30. W. Trappe, J. Song, R. Poovendran, and K. J. R. Liu, "Key Management and Distribution for Secure Multimedia Multicast," *IEEE Transactions on Multimedia*, vol. 5, pg. 544-557, 2003.
- Y. Sun, W. Trappe, and K. J. R. Liu, "A Scalable Multicast Key Management for Heterogeneous Wireless Networks," *IEEE Transactions on Networking*, vol. 12, pg. 653-666, 2004.
- 32. W. Trappe, Y. Wang, and K. J. R. Liu, "Resource-aware Conference Key Establishment for Heterogeneous Networks," *IEEE/ACM Transactions on Networking*, vol. 13, pg. 134-146, 2005.
- 33. Z. J. Wang, M. Wu, H. Zhao, W. Trappe, and K.J.R. Liu, "Anti-collusion forensics of multimedia fingerprinting using orthogonal modulation," *IEEE Trans. On Image Proc*, vol. 14, pg. 804-821, 2005.
- 34. T. Lawrence, W. Trappe, and N. Bedford, "The Influence of an Offshore Rise on Low-Frequency Modal Propagation," *Journal of Underwater Acoustics*, Vol. 48, No. 1, pg. 29-36, January 1998.
- 35. P. McCarty, J. Gross, W. Trappe, and D. Grant, "Minimum Detectable Target Strength Using Spectral Estimation Methods for the Active Barrier Problem," *Journal of Underwater Acoustics*, vol. 45, no. 1, pg. 135-154, January 1995.
- 36. T. Lawrence and W. Trappe, "Analysis of an Active Barrier Experiment in a Stable Shallow Water Environment," *Journal of Underwater Acoustics*, vol. 45, no. 1, pg. 65-86, January 1995.

Refereed Conferences:

- 1. M. Rodoper, A. Baliga, E. Jung, W. Trappe, "An Efficient Security Framework for Mobile WiMAX," in in the *Proceedings of the 27th Symposium on Applied Computing (SAC 2012)*, Trento, Italy, March 2012.
- 2. S. Mathur, R. Miller, A. Varshavsky, W. Trappe, N. Mandayam, "ProxiMate: Proximity-based Secure Pairing using Ambient Wireless Signals," in *Proceedings of the 9th international conference on Mobile systems, applications, and services (MobiSys)*, pg. 211-224, 2011.
- 3. T. Sun, Y. Zhang, W. Trappe, "Improving Access Point Association Protocols through Channel Utilization and Adaptive Switching," in *Proceedings of the IEEE* 8th *International Conference on Mobile Ad Hoc and Sensor Systems (MASS)*, pg. 155-157, 2011.
- R. Miller, W. Trappe, "ACE: Authenticating the Channel Estimation Process in Wireless Communication Systems," in *Proceedings of the Fourth ACM Conference on Wireless Network Security (WiSec 2011)*, pg. 91-96, 2011.
- 5. I. Rouf, R. Miller, H. Mustafa, T. Taylor, S. Oh, W. Xu, M. Gruteser, W. Trappe, and I. Seskar, "Security and Privacy Vulnerabilities of In-Car Wireless Networks: A Tire Pressure Monitoring System Case

Study," *in Proceedings of the 19th USENIX Security Symposium*, Washington DC, August 11-13, 2010. (Article covered by MIT Technology Review and CNN)

- 6. R. Dudheria, W. Trappe and N. Minsky, "Coordination and Control in Mobile Ubiquitous Computing Applications Using Law Governed Interaction," in *Proceedings of UBICOMM 2010*.
- 7. S. Mathur, T. Jin, N. Kasturirangan, J. Chandrasekaran, W. Xue, M. Gruteser, W. Trappe, "ParkNet: driveby sensing of road-side parking statistics," in *Proceedings of the 8th international conference on Mobile* systems, applications, and services (Mobisys 2010), pg. 123-136, 2010. (BEST PAPER AWARD).
- 8. R. Miller and W. Trappe, "Subverting MIMO Wireless Systems by Jamming the Channel Estimation Procedure," in *Proceedings of the third ACM conference on Wireless network Security (WiSec 2010).*
- 9. M. P. Fok, W. Trappe, and P. R. Prucnal, "All-Optical XOR Gate with Feedback Using Highly Ge-Doped Nonlinear Fiber," in the *Proceedings of the Optical Fiber Communication Conference and Exposition and the National Fiber Optic Engineers Conference* (OFC/NFOEC 2010), OWF7, San Diego, California, USA, March 2010.
- Y. Zhang, A. Baliga, W. Trappe, "Reactive On-board Regulation of Cognitive Radios," in *Proceedings of* 2010 IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WoWMoM), pg. 1 – 6, 2010.
- 11. M. Loiacono, J. Johnson, J. Rosca, W. Trappe, "Cross-Layer Link Adaptation for Wireless Video," in the *Proceedings of the IEEE International Communication Conference (ICC)*, pg. 1- 6, 2010.
- 12. L. Xiao, A. Reznik, W. Trappe, C. Ye, Y. Shah, L. Greenstein, N. Mandayam, "PHY-Authentication Protocol for Spoofing Detection in Wireless Networks," in the *Proceedings of the IEEE Global Telecommunications Conference (Globecom)*, pg. 1-6, 2010.
- 13. A.O. Kaya, W. Trappe, L. Greenstein, "Adapting MIMO Transmission Modes Along Paths in Urban Environments," in *Proceedings of the IEEE International Conference on Acoustics, Speech Signal Processing (ICASSP)*, 2010.
- 14. R. Miller, W. Trappe, "Physical Layer Techniques for Enhanced Situational Awareness," in *Proceedings* of the IEEE International Conference on Acoustics, Speech Signal Processing (ICASSP), 2010.
- 15. A. Garnaev, W. Trappe, "An Eavesdropping Game with SINR as an Objective Function," in *Proceedings* of 5th International Conference on Security and Communication Networks (SecureComm 2009), 2009.
- A.O. Kaya, M. Chiang, W. Trappe, "P2P-ISP Cooperation: Risks and Mitigation," in *Proceedings of the IEEE Global Communications Conference (Globecom)*, Honolulu, Hawaii, December 2009. (Best Paper Award)
- B. Firner, P. Jadhav, Y. Zhang, R. Howard, W. Trappe, E. Fenson, "Towards Continuous Asset Tracking: Low-Power Communication and Fail-Safe Presence Assurance," in *Proceedings of the 6th Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks* (SECON), 2009.
- B. Firner, P. Jadhav, Y. Zhang, R. Howard, W. Trappe, "Towards Continuous Tracking: Low-power Communication and Fail-Safe Presence Assurance," in *Proceedings of the International Conference on Information Processing in Sensor Networks (IPSN)*, pp.417-418, 2009.
- S. Mathur, S. Kaul, M. Gruteser, W. Trappe, "ParkNet: A Mobile Sensor Network for Harvesting Realtime Vehicular Parking Information," in *Proceedings of the ACM MobiHoc S3 Workshop*, pg. 25-28, May 2009.
- 20. J. Yang, Y. Chen, W. Trappe, J. Cheng, "Determining the Number of Attackers and Localizing Multiple Adversaries in Wireless Spoofing Attacks," in *Proceedings of the 28th IEEE International Conference on Computer Communications*, April 2009. (Acceptance ratio: 19.7%)
- S. Liu, L. Greenstein, Y. Chen, W. Trappe, "ALDO: An Anomaly Detection Framework for Dynamic Spectrum Access Networks," in *Proceedings of the 28th IEEE International Conference on Computer Communications*, April 2009. (Acceptance ratio: 19.7%)
- 22. S. Liu, Y. Chen, W. Trappe, L. Greenstein, "Non-interactive Localization of Cognitive Radios Based on Dynamic Signal Strength Mapping," in *Proceedings of the Sixth International Conference on Wireless Ondemand Network Systems and Services (WONS)*, February 2009. (Best Paper Award)
- A. Kaya, L. Greenstein, W. Trappe, "Characterizing Indoor Wireless Channels via Ray Tracing, and Validation via Measurements," in *Proceedings of the 2008 IEEE Global Telecommunication Conference*, pg. 1-5, Dec. 2008.

- A. Kaya, L. Greenstein, W. Trappe, "Modeling Temporal Channel Variations in Indoor Wireless Environments," in *Proceedings of the 2008 IEEE Military Communications Conference (MILCOM)*, pg. 1-7, Nov. 2008.
- 25. Z. Li, R. Yates, W. Trappe, "Secrecy Capacity Region of a Class of One-sided Interference Channel," Information Theory, 2008. ISIT 2008. IEEE International Symposium on , pg.379-383, July 2008.
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- 3. Wireless Security Lecture at the University of Illinois Wireless Summer School, 2009.
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