

Daniel Wayne Engels, Ph.D.

1013 Rhone Lane
Southlake, TX USA 76092
(817) 676 - 1031
dwe@alum.mit.edu

Education

Massachusetts Institute of Technology, Cambridge, MA.

Ph.D. Electrical Engineering and Computer Science conferred June 2000.

Thesis Title: Scheduling for Hardware-Software Partitioning in Embedded System Design.

Advisor: Srinivas Devadas.

University of California, Berkeley, CA.

M.S. Electrical Engineering and Computer Science conferred June 1995.

Thesis Title: Real-Time Task Level Scheduling in the Polis Codesign Environment.

Advisor: Alberto Sangiovanni-Vincentelli.

University at Buffalo, Buffalo, NY.

B.S. Electrical and Computer Engineering conferred June 1992.

Summa Cum Laude

Experience

Dragon Associates, LLC, Southlake, Texas

Founder: (August 2006 - Present) Consulting firm focused upon expert witness for patent litigation, patent strategy, strategic consulting, system architectural consulting, and application consulting for Internet of Things (IoT), RFID systems, technologies, and applications related to the Internet of Things, Big Data, and cybersecurity. Subject matter experts in RFID, IoT, Security, Artificial Intelligence, and mobile technologies, systems, and applications.

Southern Methodist University, Dallas, Texas

Research Fellow, SMU AT&T Center for Virtualization: (July 2020 - Present)
Research Fellow supporting and performing scholarly research within the AT&T Center.

HSBC, London, UK, Remote Texas

Head of AI, Cybersecurity Science and Analytics: (June 2020 - April 2022)

Lead the data driven application of Machine Learning and Artificial Intelligence techniques to solve the most pressing hard and big data cyber and security problems experienced within HSBC. Developed applied research programs focused on fundamental cyber security problems including asset identification and defense-in-depth evaluation based upon Big Data analysis. Established first Cybersecurity patent board to promote innovation and invention disclosure within cybersecurity.

Southern Methodist University, Dallas, Texas

Professor of Practice: (January 2017 - May 2020) Professor within the Office

of the Provost focused on online education and research at the intersection of the Internet of Things, Security, and Data Science. Founder and editor of the SMU Data Science Review journal, the primary publication platform for all SMU Master of Science in Data Science Capstone papers (<https://scholar.smu.edu/datasciencereview>).

Director/Director of Curriculum, Master of Science in Data Science: (January

2017 - September 2018) As one of the founding directors of the Master of Science in Data Science (MSDS) program, built and grew the MSDS on-line degree program from zero students in January 2015 to more than 300 students and more than \$10 million in annual revenue by September 2018. Developed procedures and policies for and managed recruiting and oversight of lecturers and adjunct professors for the MSDS program and ensured continued quality of the education experience for all students. Grew the curriculum and degree program offerings with a focus on improving each course and creating an integrated curriculum that meets the educational needs of practicing data scientists. Founder of new on-line open access data science journal at SMU, SMU Data Science Review launched in 2017.

Associate Professor, Department of Computer Science and Engineering: (September

2013 - December 2016) *Co-Executive Director, Master of Science in Data Science:* (May 2014 - December 2016), developed and implemented new on-line only master's degree program in data science (MSDS) that began classes January 2015. Led the MSDS program from 0 students to over 300 students in less than 3 years with over \$10 million per year in revenue. Developed on-line Database course for the MSDS program. Developed on-line Data and Network Security course for MSDS program. Redesigned and taught on-campus Computer Networking I and II. Researching and developing innovative technologies and techniques to provide valuable insights from the breadcrumbs and sandwiches of data generated by the Internet of Things (IoT) and mobile devices in their journeys throughout our world. Developing secure networking, software defined networks and communications technologies and systems that provide for improved city management and increased quality of life for all Smart City citizens.

Visiting Fellow, Department of Computer Science and Engineering: (August 2010 - August 2013) Developed technologies and systems based upon Internet of Things (IoT) technologies for secure mobile ad hoc networks targeting home healthcare and military applications. Key problems investigated include security for lightweight devices such as RFID tags and body area devices, secure communication protocols for lightweight devices, low-power device and system architectures, large, distributed data fusion and analytics (big data) in IoT and secure data and object distribution in mobile environments.

Vattaca, LLC dba VerifyItNow, Addison, Texas

Co-Founder: (October 2013 - August 2017) Angel backed startup company. Developed smart phone based secure IoT applications for authentication, anti-counterfeit, security, supply chain management, and item analytics. Primary product is a system capable of authenticating tagged products using a smart phone, providing direct marketing and analytic capabilities to product manufacturers and brand owners and providing enhanced product experiences to consumers. Led the development of a cloud based Data Storage and Data Analytics infrastructure capable of handling millions of transactions.

Dupre Dimensions, Inc., Dallas, Texas

Member: (January 2013 - May 2013) Developed new technologies, products, and services in wireless communications, secure messaging, cryptography, and Internet of Thing systems. Developed and implementing the technical strategy to monetize and expand DDI's patent portfolio and develop products, services, partners and new businesses around DDI's portfolio and expertise. Led standardization efforts related to DDI's portfolio.

Revere Security, Addison, Texas

Chief Technology Officer: (August 2009 - August 2012) Led the research, development, and technical strategy at Revere Security. Developed secure protocols utilizing the Hummingbird cipher. Developed rotor based ciphers extending Hummingbird to additional application domains. Led the development of numerous patent applications to protect the intellectual property of Revere Security. Led participation in EPCglobal and ISO secure RFID standards development. Developed technical partnerships with RFID, wireless sensor, and M2M companies. Industry advocate for a secure ubiquitous Internet of Things.

University of Texas at Arlington, Arlington, Texas Texas Radio Frequency Innovation and Technology Center Department of Electrical Engineering.

Associate Professor (with Tenure) Department of Electrical Engineering/Director,

Texas Innovation Center : (June 2006 - August 2009) Director of the Texas Radio Frequency Innovation and Technology Center (Texas Innovation Center). Led a multi-department, interdisciplinary team in the research and development of innovative radio frequency based technologies, devices, and systems. Developed graduate level RFID engineering courses and a graduate level curriculum in RFID systems. A critical aspect of my responsibilities included the building of relationships and cooperative research programs with other research groups, professors, and researchers both within and without UTA. Invited to speak often at industrial and non-academic conferences in addition to peer-reviewed research publications.

Massachusetts Institute of Technology, Cambridge, MA
Healthcare Research Initiative
Department of Mechanical Engineering.

MIT Research Scientist/Healthcare Research Initiative Director : (June 2005 - June 2006) Director and founder of the MIT Healthcare Research Initiative (HRI). The HRI was the leading research program investigating the use of RFID technologies to improve patient safety. As the leader of the HRI, setting all research directions, developing new avenues of research, developing and securing funding for activities, and developing new funding sources for the HRI. A critical aspect of my responsibilities is the building of relationships and cooperative research programs with other research groups, professors, and researchers both within and without MIT. Often invited to speak at industrial and non-academic conferences in addition to peer-reviewed research publications.

Massachusetts Institute of Technology, Cambridge, MA
Auto-ID Labs
Department of Mechanical Engineering.

MIT Research Scientist/Auto-ID Labs Director of Research: (October 2003 – June 2005) Director of Research leading all activities of the Auto-ID Labs of MIT. As the leader of the Auto-ID Labs, setting all research directions, developing new avenues of research, developing and securing funding for activities, and developing new funding sources for the Auto-ID Labs. Responsible for developing new Auto-ID Labs member laboratories in unrepresented areas of the world. Primary RFID research is in the areas of the Reader Collision Problem, UHF tag antenna designs, tools for RFID use, the EPC System, and the impact of RFID on Sarbanes-Oxley Act compliance. Principle liaison to EPCglobal. Founding co-Chair of the EPCglobal Hardware Action Group. Led the development of the EPCglobal Gen2 UHF protocol. Invited to speak often at industrial and non-academic conferences in addition to peer-reviewed research publications.

Massachusetts Institute of Technology, Cambridge, MA
Auto-ID Center
Department of Mechanical Engineering.

MIT Sponsored Research Technical Supervisor/Auto-ID Center Director of Protocols: (October 2002 – October 2003) Director of Protocols leading the research and development of RFID standards, protocols for their use, and compliance and compatibility tests for systems developed to these standards. Led the development of the Auto-ID Class 1 Generation 1 UHF and HF protocols. Led the initial development of the EPC Gen2 UHF protocol. Primary RFID research is in the areas of the Reader Collision Problem, protocols for tag anti-collision, and RF signalling between tag and reader. Co-research advisor (with Prof. Sanjay Sarma) to several graduate students researching problems in RFID systems. Technical manager of the Auto-ID Center's Field Trial. Technical liaison to Auto-ID Center sponsors and potential sponsors. Often invited to speak at industrial and non-academic conferences in addition to peer-reviewed research publications.

MIT Sponsored Research Technical Supervisor/Auto-ID Center Associate Director: (March 2002 – October 2002) Associate Director in charge of managing the day-to-day research activities of the MIT Auto-ID Center Lab and all technical aspects of the design, deployment, and management of the Auto-ID Center's Field Trial. Technical liaison to Auto-ID Center sponsors and potential sponsors. Evangelist for the Auto-ID Center, speaking at industrial and non-academic conferences. Co-leader of action groups formed for the development of HF and UHF RFID tag interface standards recommendations. Co-research advisor (with Prof. Sanjay Sarma) to several graduate students researching problems related to RFID systems.

MIT Sponsored Research Technical Supervisor/Auto-ID Center Program Manager: (December 2000 – February 2002) Program Manager in charge of managing the day-to-day research activities of the MIT Auto-ID Center Lab and all technical aspects of the design, deployment, and management of the Auto-ID Center's Field Trial. Technical liaison to Auto-ID Center sponsors and potential sponsors.

MIT Postdoctoral Associate: (June 2000 – November 2000) Performed research in all areas related to the Auto-ID Center's system design, implementation, and application.

Massachusetts Institute of Technology, Cambridge, MA.
Laboratory for Computer Science (LCS)/Research Laboratory of Electronics (RLE)
Department of Electrical Engineering and Computer Science.

Research Assistant: (September 1996 – June 2000) Doctoral research developed

a new design scheme for the automated partitioning of embedded system functionality into hardware and software components. The partitioning scheme is based upon a novel approach that formulates the partitioning problem as a scheduling with rejection problem involving lag times. The scheduling problem allows jobs to be rejected, or not scheduled, and uses lag times to model communication delays. This scheduling problem is solved using a linear-time algorithm to obtain an allocation of functionality to either hardware or software and a deterministic schedule describing the temporal behavior of the functionality. Additional research characterizes the complexity of scheduling problems involving lag times allowing job rejection was determined. This theoretical analysis provides a tight characterization of the complexity of these problems, identifying those scheduling problems that can be optimally solved in polynomial time and providing approximation schemes for some problems that are $\mathcal{NP}$ -hard.

Visiting Scientist: (June 1995 – August 1996) Member of the SPAM group led by Prof. Srinivas Devadas at MIT. Research included designing the framework for a hardware/software codesign system. The codesign system consists of three main avenues for research: high-level analysis and synthesis (includes the hardware/software partitioning problem), automatic processor generation, and retargetable compilation. Investigated problems involved in designing small embedded systems and laid the foundation for my doctoral research.

**University of California, Berkeley, CA.
Electronics Research Laboratory (ERL)
Department of Electrical Engineering and Computer Science.**

Graduate Student Researcher: (June 1993 – May 1995) Member of the Polis Hardware/Software CoDesign group led by Prof. Alberto Sangiovanni-Vincentelli. Master's thesis research involved investigating and implementing the automatic generation of a real-time task level scheduler within the Polis Codesign Environment.

Graduate Student Instructor: (August 1992 – May 1993) Teaching Assistant (TA) for the core Digital Design course. Duties included preparing and presenting discussion section materials, preparing and grading weekly lab assignments, and helping students with questions on class material, homeworks, lab assignments, and the course project. As 'Head' TA in Spring 1993 duties also included evaluating and creating exams, maintaining grading information for all students, and preparing and presenting special subject lectures.

Eastman Kodak Company, Office Imaging Division, Rochester, NY.

Summer Intern: (Summer 1992) Redesigned the memory system on the main control board of a copier to take advantage of FLASH memory technol-

ogy. Involved the research of FLASH memory technology, interacting with Intel sales representatives and technical support, interaction with socket vendors to obtain prototype sockets for the FLASH memory, use of Daisy/Cadnetix CAD tools to modify the existing schematic.

Summer Intern: (Summer 1991) Created an archival program for the released files generated by the Daisy/Cadnetix software. Created a data base for budgetary and maintenance purposes using the Ingres Relational Database Software.

Summer Intern: (Summer 1990) Created three programs used to convert the output files of the Daisy/Cadnetix software from one format to a format usable by the manufacturing equipment for circuit board designs.

Expert Witness Consulting and Testimony

FedEx Corporate Services, Inc. v. Roambee Corp, IPR). Client RedEx Corporate Services, Inc. Attorneys Finnegan, Henderson, Farabow, Garrett & Dunner, LLP. Consultant and expert witness in inter partes review involving patents owned by Roambee Corp (US10,438,162 and US 10,990,922).

Testified:

Giesecke Devrient GMBH v. The United States and Gemalto, Inc., Case No. 17-01812-RTH (Ct. Fed. Cl. Dec. 14, 2016). Client: United States. Attorneys Armstrong Teasdale LLP. Consultant and expert witness in patent litigation involving patents owned by Giesecke Devrient GMBH (US7,837,119 and US8,857,717).

Testified:

Mynette Technologies, Inc. and Steven M. Colby v. The United States and Gemalto, Inc., Case No. 16-1647 (Ct. Fed. Cl. Dec. 14, 2016). Client: United States and Gemalto, Inc. Attorneys Mayer Brown LLC. Consultant and expert witness in patent litigation involving patents owned by Mynett Technologies, Inc. and Steven M. Colby (US7,719,425, US7,924,156, US9,524,458, and US9,568,777).

Testified:

Linquet Technologies, Inc. v. Tile, Inc., Case No. 3:20-cv-05153 (N.D. Cal Jul. 27, 2020) and *Tile, Inc. v. Linquet Technologies, Inc., Case No. IPR2021-00927 (P.T.A.B. May 13, 2021)*. United States District Court, Northern District of California. Client Linquet, Inc. Attorneys Faegre, Drinker, Biddle & Reath LLC. Consultant and expert witness in patent litigation involving patents owned by Linquet, Inc. (US10,163, 318).

Testified:

Amtech Systems LLC v. Kapsch TrafficCom AG et al, Case No. 6:20-cv-01044-ADA (W.D.Tx. Nov. 12, 2020) United States District Court, Western District of Texas. Client Amtech Systems LLC. Attorneys King & Spalding LLP. Consultant and expert witness in patent litigation involving patents owned by Amtech Systems, LLC. (US7,548,153, US8,427,279, and US10,083,329).

Testified:

Northstar Systems, LLC v. Hennes & Mauritz AB, Case No. 2:20-cv-00407-JRG (W.D.Tx. Dec. 30, 2020) United States District Court, Western District of Texas. Client Hennes & Mauritz AB. Attorneys Peroff Saunders P.C. Consultant and expert witness in patent litigation involving patents owned by Northstar Systems, LLC. (US6,614,349, US6,697,103, and US8,493,442).

Testified:

ADASA, Inc. v. Avery Dennison Corporation, Case No. 6:17-cv-01685-TC (D. Or. Jan. 22, 2019). United States District Court, District of Oregon, Eugene Division. Client ADASA, Inc. Attorneys Friedman, Suder & Cooke. Consultant and expert witness in patent litigation involving patents owned by ADASA, Inc. (US9,798,967).

Testified: deposition, trial.

Rokiot USA, LLC v. Samsung Electronics Co. and Samsung Electronics America, Inc., Case No. 6:18-cv-00062 (E.D. Tx. Feb. 8, 2018). United States District Court, Eastern District of Texas Marshall Division. Client Samsung Electronics. Attorneys Williams & Connolly LLP. Consultant and expert witness in patent litigation involving two patents owned by Rokiot (US7,895,257 and US8,631,063).

Case Settled Sep 2018

Alarm.com Inc. & ICN Acquisition, LLC v. ipDatatel, LLC, Case No. 2:17-cv-00609-JRG (E.D. Tx. Feb. 16, 2017). United States District Court, Eastern District of Texas Marshall Division. Client ipDatatel. Attorneys Faegre Baker Daniels. Consultant and expert witness in patent litigation involving multiple patents owned by Alarm.com (US7,113,090, US7,633,385, US7,956,736, US8,478,871 and US9,141,276).

Testified:

Declarations: Indefiniteness

Intellectual Ventures II LLC v. Fedex Corp., et al. Case No. 2:16-cv-00980-JRG (E.D. Tx. Aug. 31, 2016). United States District Court, Eastern District of Texas Marshall Division. Client Intellectual Ventures II. Attorneys Desmarais LLC. Consultant and expert witness in patent litigation involving three patents owned by Intellectual Ventures (US7,199,715, US9,047,586, and US6,909,356).

Testified: deposition, trial.

Reexamination of patents US7,199,715, US9,047,586, and US6,909,356 Patent and Trial Appeal Board. Client Intellectual Ventures II. Attorneys Desmarais LLP. Consultant and expert witness in intellectual property review and patent litigation involving three patents owned by client. Wrote IPR declarations on validity of US7,199,715, US9,047,586, and US6,909,356.

Testified: deposition.

Robert E. Morley, Jr., et al. v. Square, Inc, et al. Case No. 4:14-cv-00172-SNLJ (Jan. 30, 2014). United States District Court, Eastern District of Missouri Eastern Division. Client Square, Inc., et al. Attorneys Gibson Dunn. Consultant and expert witness in trade secret litigation involving the design and information dissemination of the Square reader and system.

Testified: deposition.

Sonix Technology Co., Ltd. v. Publications International, Ltd., SD-X Interactive, Inc., Encyclopedia Britannica, and Herff Jones, Inc. Case No. 13-CV-2082. United States District Court, Northern District of Illinois Eastern Division. Client Publications International, Ltd., et al. Attorneys Freeborn and Peters. Consultant and expert witness in patent litigation involving two patents owned by Sonix. Patents cover dot based bar code technologies and systems utilizing those technologies in educational materials.

Testified: deposition.

(October 2014 - September 2017) AmerisourceBergen Specialty Group, Inc. v. FFF Enterprises Inc. Case No. 4:13-cv-755. Client AmerisourceBergen Specialty Group. Attorneys Munck Wilson Mandala. Consultant and expert witness in patent litigation involving one patent owned by client. Assistance included declarations for patent reexamination, validity and infringement.

Testified: deposition.

NNPT, LLC v. Huawei Investment & Holding Co., Ltd., et al, Civil Action No. 2:14-cv-0677. United States District Court for the Eastern District of Texas. Client Huawei et al. Attorneys Locke Lord Edwards LLP.

Emmanuel C. Gonzalez v. Tagged, Inc., et al. Case No. 2:14-cv-906 (Consolidated lead case). United States District Court for the Eastern District of Texas Marshall Division. Client Gonzalez. Attorneys Locke Lord Edwards LLP. Consultant and expert witness in patent litigation involving patents owned by client.

Testified: trial.

Alien Technology Corp. v. Intermec, Inc., Intermec Technologies Corp., and Intermec IP Corp. Civil Action No. 3:06-CV-51. United States District Court for the District of North Dakota Southeastern Division. Client Intermec. Attorneys Freeborn and Peters LLP. Consultant and expert witness in case involving infringement, non-infringement, validity, invalidity and patent reexamination of patents owned by both litigants.

Testified: deposition.

Zebra Technologies Corporation & ZIH Corporation vs. Intermec, Inc. and Intermec IP. Case No:12-cv-09808. United States District Court Northern District of Illinois Eastern Division. Client Intermec. Attorneys Perkins Coie. Consultant and expert witness in patent litigation involving five patents owned by opposing litigant. Assisted in developing the term constructions, invalidity, non-infringement and responsive reports. Case settled prior to Markman hearing.

Long Range Systems v HME Wireless Civil Action No. 3:12-cv-03659-K. United States District Court for the Northern District of Texas Dallas Division. Client HME Wireless. Attorneys Pillsbury Winthrop Shaw Pittman LLP. Consultant and expert witness in patent litigation involving patent owned by client U.S. 6,712,278, involving the subject matter of a system that automatically identifies the location of a customer to whom an order is to be delivered in a restaurant. Wrote expert reports for Markman, Claim Construction, Response on Claim Construction. Opposing litigant filed motion to dismiss with prejudice. Long Range Systems filed motion to dismiss with prejudice in October 2013.

Reexamination of US Patent No. 5,644,489. United States Patent and Trademark Office Reexamination Control No.: 90/012/437. Client Philippi-Hagenbuch, Inc. Attorneys Leydig, Voit & Mayer LTD. Consultant and potential expert witness for Philippi-Hagenbuch, Inc. Authored declaration in connection with the reexamination of US Patent No. 5,644,489. Reexamination of patent owned by client. Wrote declaration on validity.

Selected Consulting Clients

Evanhoe and Associates, Dayton, OH

Technology Consultant: (September 2014 - September 2015) Technical expertise and product and application research and design for mesh networks and RFID systems.

Vattaca, LLC, Addison, TX

Technology Consultant: (September 2013 - September 2016) Technical expertise and product and application research and design for mesh networks and RFID systems.

Dupre Dimensions, Dallas, TX.

Technology Consultant: (October 2012 - December 2012) Technical expertise and business development for security and the Internet of Things. Working with and advising the owners and managers to build a business based upon the patent portfolio and products owned by Dupre Dimensions.

ODIN Technologies, Reston, VA.

Architectural Consultant: (November 2003 - October 2006) Provide technical expertise and advise on the design and deployment of RFID systems, supply chain processes, and application systems and develop technical white papers and experimental evaluations for RFID systems. Projects include the deployment of RFID systems for asset tracking at a U.S. law enforcement agency, airline baggage and cargo tracking, and case and pallet identification at FMCG manufacturers.

Mitsubishi Corporation, New York, NY.

Strategic Consultant: (May 2004 - September 2004) Developed a strategic blueprint for Mitsubishi Corporation to provide services in secure ocean cargo operations. Provided training sessions on C-TPAT, Container Security Initiative (CSI), and Operation Safe Commerce (OSC) security mandates and programs.

Stryker Homedical, Mahwah, NJ.

RFID Expert Consultant: (May 2004 - July 2004) Provided training and education on RFID technologies and their use within the manufacturing environment. Developed an implementation plan for the deployment of RFID technologies to improve manufacturing quality control.

Revelink, Lincoln, MA.

Software Engineer: (June 2000 - August 2000) Designed and implemented a “scheduling engine” for Revelink’s operations management and manufacturing management product suite. The scheduling engine was designed to allow incremental and continuous task updates to allow real-time process and resource monitoring and task rescheduling and resource reallocation as required by changes in the status of personnel, resources, and task completions.

Honors/Awards

Ted Williams Award, awarded by AIM 2014

IEEE Senior Member promoted 2006

AIDC 100 inducted 2006

NCAA Division I East Coast Conference Scholar-Athlete Award in Wrestling 1992.

NCAA Division II Wrestling All-American 1991.

NCAA Division II Academic All-American 1991.

GAAN Fellowship 1993.

Clifford C. Furnas Scholar/Athlete Award/Fellowship 1992.

NSF Fellowship, Honorable Mention 1992.

University at Buffalo Honors Scholar 1988-1992.

New York State Empire Scholarship of Excellence 1988-1992.

New York State Regents Scholarship 1988-1992.

Herring College Scholarship 1988-1992.

Eastman Kodak Scholarship 1989-1992.

Grace W. Capen Memorial Award for Academic Excellence 1990.

Society of Logistics Engineers Scholarship 1989.

Society Memberships

IEEE, Senior Member 2006.

AIDC 100 inducted 2006.

Upsilon Pi Epsilon inducted 2015 .

Tau Beta Pi inducted 1991.

Eta Kappa Nu inducted 1991.

Community Activities

Founder, SMU Data Science Review Journal, 2017

Editor in Chief, SMU Data Science Review Journal, 2017-2020

Faculty Advisor, SMU Cybersecurity Club (SC)², 2016-2020

Faculty Advisor, Tau Beta Pi, SMU, 2016-2019

Chair, IEEE Technical Committee on RFID, 2011-2012

Secretary/Treasurer, IEEE Technical Committee on RFID, 2014

Co-Founder, IEEE International Conference on RFID, 2007

Patron Chair, IEEE International Conference on RFID 2015

Patron Chair, IEEE International Conference on RFID 2014

General Chair, IEEE International Conference on RFID 2010

General Chair, IEEE International Conference on RFID 2009

Program Chair, IEEE International Conference on RFID 2008

Program Chair, IEEE International Conference on RFID 2007

Associate Editor, (2005-2009) International Journal of Radio Frequency Identification Technology and Applications, Inderscience.

Co-Chair, (2003-2005) EPCglobal Hardware Action Group.

Patent Portfolio

Issued U.S. Patents

1. Sarma, Sanjay; Engels, Daniel W.; Putta, Laxmiprasad; Ramachandran, Sridhar; and Waldrop, James L., "Method and Apparatus for Routing Data in an Automatic Identification System." U.S. Patent 7,621,447, issued November 24, 2009.
2. Sarma, Sanjay; Engels, Daniel W.; Nygren, Erik L.; Foley, Joseph T.; Brock, David L.; Sai, Kay-Yeung, "Object Name System." U.S. Patent 7,765,253, issued July 27, 2010.
3. Arumugam, Darmindra.D.; Ambravaneswaran, Vijayakrishnan; and Engels, Daniel W., "Single Antenna Single Reader System and Method for Locating a Tag." U.S. Patent 8,102,267, issued January 24, 2012.
4. Smith, Eric Myron; Engels, Daniel W.; Schweitzer, Peter; and Schultz, Troy A., "Hybrid Mode Cryptographic Method and System with Message Authentication." U.S. Patent 8,509,427, issued August 13, 2013.
5. Engels, Daniel W.; Lauffenburger, Kenneth Alan; Smith, Eric Myron; and Hicks, Troy, "Cryptographic Processor with Dynamic Update of Encryption State." U.S. Patent 8,515,059, issued August 20, 2013.
6. Engels, Daniel W.; Smith, Eric M.; and Mandel, Ross, "Authenticating and Managing Item Ownership and Authenticity." U.S. Patent 9,256,881, issued February 9, 2016.
7. Cink, James H.; Storey, Gregory K.; Jordan, Kyle K.; Austin, James W.; Evanhoe, Charles E.; Ivy, Bart; Engels, Daniel W.; Freeman, Daniel; Lauffenburger, Kenneth; Dills, Thomas; Brown, Kenneth S.; Leichter, Cheryl, "Pest Control and Detection System with Conductive Bait Matrix." U.S. Patent 10,085,435, issued October 2, 2018.
8. Engels, Daniel W.; Smith, Eric M.; and Mandel, Ross, "Authenticating and Managing Item Ownership and Authenticity." U.S. Patent 10,387,695, issued August 20, 2019.
9. Cink, James H.; Storey, Gregory K.; Jordan, Kyle K.; Austin, James W.; Evanhoe, Charles E.; Ivy, Bart; Engels, Daniel W.; Freeman, Daniel; Lauffenburger, Kenneth; Dills, Thomas; Brown, Kenneth S.; Leichter, Cheryl, "Pest Control and Detection System with Conductive Bait Matrix." U.S. Patent 11,477,973, issued October 25, 2022.

Publications

Theses

1. Daniel W. Engels, Real-Time Task Level Scheduling in the Polis Co-Design Environment, Master's Thesis, University of California, Berkeley, 1995.
2. Daniel W. Engels, Scheduling for Hardware-Software Partitioning in Embedded System Design, PhD Thesis, Massachusetts Institute of Technology, 2000.

Journals

1. Massimiliano Chiodo, Daniel W. Engels, Paolo Giusto, Harry Hsieh, Attila Jurecska, Luciano Lavagno, Kei Suzuki, Alberto Sangiovanni-Vincentelli, "A Case Study in Computer-Aided Co-design of Embedded Controllers," *Design Automation for Embedded Systems*, Volume 1, Number 1-2, January 1996.
2. Mahadevan Balasubramaniam, Yogesh Joshi, Daniel Engels, Sanjay Sarma, and Zafar Shaikh, "Tool Selection in Three-Axis Rough Machining," *International Journal of Production Research*, Volume 39, Number 18:4215-4238, December 2001.
3. Sanjay Sarma, David Brock, and Daniel W. Engels, "Radio Frequency Identification and the Electronic Product Code," *IEEE Micro*, Volume 21, Number 6:50-54, November/December 2001.
4. Sanjay E. Sarma, Stephen A. Weis, and Daniel W. Engels, "Radio Frequency Identification Security Risks and Challenges," *RSA Laboratories CryptoBytes*, Volume 6, Number 1:2-9, Spring 2003.
5. Daniel W. Engels, David R. Karger, Stavros G. Kolliopoulos, Sudipta Sengupta, R.N. Uma, and Joel Wein, "Techniques for Scheduling with Rejection," *Journal of Algorithms*, Volume 49, Number 1: 175-191, 2003.
6. Katariina Penttiläe Ruhanen, Daniel W. Engels, and Marku Kivikoski, "Radio Frequency Identification Systems in Supply Chain Management," *International Journal of Robotics and Automation*, Volume 19, Issue 3, ACTA Press, 2004.
7. Stefanie Alki Delichatsios, Daniel W. Engels, Leena Ukkonen, and Lauri Sydänheimo, "Albano Multidimensional UHF Passive RFID Tag Antenna Designs," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 1, Issue 1, Inderscience, 2006.
8. Leena Ukkonen, Marijke Schaffrath, Daniel W. Engels, Lauri Sydänheimo, and Markku Kivikoski, "Operability of Folded Microstrip Patch-Type Tag Antenna in the UHF RFID Bands within 865-928 MHz," *Antennas and Wireless Propagation Letters (AWPL)*, Volume 5, Issue 1, December 2006.

9. Leena Ukkonen, Lauri Sydanheimo, Daniel W. Engels, and Markku Kivikoski, "Performance Comparison of Folded Microstrip Patch-Type Tag Antenna in the UHF RFID Bands within 865-928 MHz using EPC Gen1 and Gen2 Standards," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 1, Issue 2, Inderscience, 2007.
10. Darmindra D. Arumugam, Daniel W. Engels, and Amar Modi, "Environmental and Performance Analysis of SAW-Based RFID Systems," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 1, Issue 2, Inderscience, 2007.
11. Darmindra D. Arumugam and Daniel W. Engels, "Characterization of RF propagation in metal pipes for passive RFID system," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 1, Number 3, pp 303-343, Inderscience, 2007.
12. Darmindra D. Arumugam and Daniel W. Engels, "Characterization of RF propagation in rectangular metal pipes for passive RFID systems," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 1, Number 4, pp 345-362, Inderscience, 2007.
13. Darmindra D. Arumugam, VijayaKrishnan Ambravaneswaran, Amar Modi, and Daniel W. Engels, "2D Localization using SAW-based RFID Systems: A Single Antenna Approach," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 1, Number 4, pp 417-438, Inderscience, 2007.
14. Sanjay Sarma, Peter Cole, Marlin H. Mickle, Daniel W. Engels, and Duncan McFarlane, "Guest Editorial Special Section on RFID," *IEEE Transactions on Automation Science and Engineering*, Volume 6, Number 1, January 2009, pages 1-3.
15. Darmindra D. Arumugam, Daniel W. Engels, and Marlin H. Mickle, "Specific Absorption Rates in the Human Head and Shoulder for Passive UHF RFID Systems," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 2, Number 1-2, pp 1-26, Inderscience 2009.
16. Darmindra D. Arumugam, Ananyaa Gautham, Gaurov Narayanaswamy, Nikhil Ayer, and Daniel W. Engels, "Impact of Human Presence on the Read Zones of Passive UHF RFID Systems," *International Journal of Radio Frequency Identification Technology and Applications*, Volume 2, Number 1-2, pp 46-64, Inderscience 2009.
17. Jae Sung Choi, Hyun Lee, Daniel W. Engels, and Ramez Elmasri, "Passive UHF RFID-Based Localization Using Detection of Tag Interference on Smart Shelf." *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Review*. Volume 42, Issue 2, pp 268-275, March 2012.

18. You Sung Kang, Dong-Jo Park, Daniel W. Engels, and Doocho Choi, "KeyQ: A Dynamic Key Establishment Method Using an RFID Anti-Collision Protocol," *IEICE Transactions on Fundamentals of Electronics Communications and Computer Science*, Volume E97-A, Number 12, pp 2662- 2666, December 2014.
19. Yi Liu, He Wang, Junyu Wang, Kan Qian, Ning Kong, Kaijiang Wang, Lirong Zheng, Yi W. Shi and Daniel Engels, "Enterprise-Oriented IoT Name Service for Agricultural Product Supply Chain Management," *International Journal of Distributed Sensor Networks*, Volume 2015 Article ID 308165, 2015.
20. Xi Tan, Mianxiong Dong, Chen Wu, Kaotu Ota, Junyu Wang and Daniel Engels, "An Energy-Efficient ECC Processor of UHF RFID Tag for Banknote Anti-Counterfeiting," *IEEE Access*, issue 99, October 2016. DOI 10.1109/ACCESS.2016.2615003.
21. Xi Tan, He Wang, Junyu Wang, Lingzhi Fu, Hao Min, and Daniel Engels, "Collision Detection and Signal Recovery for UHF RFID Systems," *IEEE Transactions on Automation Science and Engineering*, Volume 15, Issue 1, pp. 239-250, January 2018.

Book Chapters

1. Behnam Jamali, Peter H. Cole, and Daniel W. Engels, "RFID Tag Vulnerabilities in RFID Systems," In *Networked RFID Systems and Lightweight Cryptography: Raising Barriers to Product Counterfeiting*, Peter H. Cole and Damith C. Ranasinghe, editors. 2007.

Conferences

1. Daniel W. Engels, David R. Karger, Stavros G. Kolliopoulos, Sudipta Sen-gupta, R.N. Uma, and Joel Wein, "Techniques for Scheduling with Rejection," In Gianfranco Bilardi, Giuseppe F. Italiano, Andrea Pietracaprina, and Geppino Pucci, editors, *ESA '98, Proceedings of the 6th Annual European Symposium on Algorithms, LNCS*, pages 490-501, Springer 1998.
2. Daniel W. Engels and Sanjay E. Sarma, "Towards an Open Architecture Specification Language," In *SPIE International Symposium on Intelligent Systems and Advanced Manufacturing*, pages 17-25, 1999.
3. Daniel W. Engels and Srinivas Devadas, "A New Approach to Solving the Hardware-Software Partitioning Problem in Embedded System Design," In *Proceedings SBCCI 2000, 13th Symposium on Integrated Circuits and Systems Design*, pages 275-280, 2000.
4. Daniel W. Engels, John Feldman, David Karger, and Matthias Ruhl, "Parallel Processor Scheduling with Delay Constraints," In *Symposium on Discrete Algorithms (SODA01)*, pages 577-585, 2001.

5. Daniel W. Engels, Joseph Foley, James Waldrop, Sanjay E. Sarma, and David Brock, "The Networked Physical World: An Automated Identification Architecture," In *Proceedings of the Second IEEE Workshop on Internet Applications (WIAPP'01)*, pages 76-77, San Jose, CA 2001.
6. Prabhat Jain, Srinivas Devadas, Daniel W. Engels, and Larry Rudolph, "Software-Assisted Cache Replacement Mechanisms for Embedded Systems," In *Proceedings of the IEEE/ACM International Conference on Computer Aided Design (ICCAD01)*, November 4-8, 2001, San Jose, California, USA. ACM, 2001.
7. Sanjay E. Sarma, Stephen A. Weis, Daniel W. Engels, "RFID Systems and Security and Privacy Implications." In *CHES '02, 4th International Workshop on Cryptographic Hardware and Embedded Systems*, Redwood Shores, CA, USA, August 13-15, 2002. Lecture Notes in Computer Science (LNCS) 2523, pages 454-469, Springer, 2003.
8. Daniel W. Engels and Sanjay E. Sarma, "The Reader Collision Problem," in *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics*, October 6-9, 2002, Hammamet, Tunisia, IEEE, 2002.
9. Peter H. Cole and Daniel W. Engels, "Auto-ID – 21st Century Supply Chain Technology," in *Proceedings of the Australian Electrical and Electronic Manufacturers Association (AEEMA) National Conference, Cleaner Greener Smarter 2002*, Melbourne, NSW, Australia. October 14-16, 2002.
10. Daniel W. Engels, Sanjay E. Sarma, Laxmiprasad Putta, and David Brock, "The Networked Physical World System," in *Proceedings of the IADIS International Conference on WWW/Internet 2002 (ICWI 2002)*, pages 104-111, Lisbon, Portugal. November 13-15, 2002.
11. Steve Weis, Sanjay E. Sarma, Daniel W. Engels, and Ron Rivest, "Security and Privacy Aspects of Low-Cost Radio Frequency Identification Systems," in *Proceedings of First International Conference in Security in Pervasive Computing (SPC2003)*, pages 201-212, Boppard, Germany, March 12-14, 2003. Lecture Notes in Computer Science (LNCS) 2802, Springer 2004.
12. James Waldrop, Daniel W. Engels, and Sanjay E. Sarma, "Colorwave: A MAC for RFID Reader Networks," in *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC03)*, New Orleans, Louisiana, USA. 16-20 March 2003.
13. James Waldrop, Daniel W. Engels, and Sanjay E. Sarma, "Colorwave: An Anticollision Algorithm for the Reader Collision Problem," in *Proceedings of IEEE International Conference on Communications (ICC03)*, Anchorage, Alaska, USA. 11-15 May 2003.
14. Leena Ukkonen, Daniel W. Engels, Lauri Sydänheimo, and Marku Kivikoski, "Planar Wire-Type Inverted-F RFID Tag Antenna Mountable on Metallic Objects," *2004 IEEE AP-S International Symposium*, Monterey, California, USA. June 20-25, 2004.

15. Leena Ukkonen, Mikael Soini, Daniel W. Engels, Lauri Sydanheimo, and Marku Kivikoski, "Effect of Conductive Material in Objects on Identification with Passive RFID Technology: a Case Study of Cigarette Cartons," *2004 ICMA International Conference on Machine Automation*, Osaka, Japan. 24-26 November 2004.
16. Damith C. Ranasinghe, David M. Hall, Peter H. Cole, and Daniel W. Engels, "An Embedded UHF RFID Label Antenna for Tagging Metallic Objects," In *Proceedings of International Conference on Intelligent Sensors, Sensor Networks, and Information Processing (ISSNIP) 2004*, Melbourne, Australia, 14-17 December 2004.
17. Damith C. Ranasinghe, Daniel W. Engels, Peter H. Cole, "Security and Privacy Solutions for Low-Cost RFID Systems," In *Proceedings of International Conference on Intelligent Sensors, Sensor Networks, and Information Processing (ISSNIP) 2004*, Melbourne, Australia. 14-17 December 2004.
18. Leena Ukkonen, Daniel W. Engels, Lauri Sydanheimo, and Marku Kivikoski, "Folded Microstrip Patch Antenna for RFID Tagging of Objects Containing Metallic Foil," In *Proceedings of the 2005 IEEE AP-S International Symposium*, Washington D.C., USA, July 5-8, 2005.
19. Leena Ukkonen, Daniel W. Engels, Lauri Sydanheimo, and Marku Kivikoski, "Reliability of Passive RFID of Multiple Objects using Folded Microstrip Patch-Type Tag Antenna," In *Proceedings of the 2005 IEEE AP-S International Symposium*, Washington D.C., USA, July 5-8, 2005.
20. In K. Mun, Allan B. Kantrowitz, and Daniel W. Engels, "Emerging RFID Applications for Healthcare," In *Proceedings of 2005 IEEE International Conference on Service Operations and Logistics, and Informatics (PSOI 2005)*, Beijing, China, August 10-12, 2005.
21. Damith C. Ranasinghe, Kin Seong Leong, Mun Leng Ng, Daniel W. Engels, and Peter H. Cole, "A Distributed Architecture for a Ubiquitous Item Identification Network," In *Proceedings of the 2005 Workshop on Smart Object Systems*, Tokyo, Japan, September 11, 2005.
22. Sivaram Cheekiralla and Daniel W. Engels, "A Functional Taxonomy of Wireless Sensor Network Devices," In *Proceedings of Basenets 2005: Second IEEE/CreateNet International Workshop on Broadband Advanced Sensor Networks*, Boston, MA, USA, October 3, 2005.
23. Damith C. Ranasinghe, Kin Seung Leong, Mun Ling Ng, Daniel W. Engels, and Peter H. Cole, "A Distributed Architecture for a Ubiquitous RFID Sensing Network," In *Proceedings of International Conference on Intelligent Sensors, Sensor Networks, and Information Processing (ISSNIP) 2005*, Melbourne, Australia. 5-8 December 2005.
24. Stefanie Alki Delichatsios and Daniel W. Engels, "The Albano Passive UHF RFID Tag Antenna," In *Proceedings of Waveform Diversity & Design Conference*, Lihue, Hawaii, USA. 22-27 January 2006.

25. Junius Ho, Daniel W. Engels, and Sanjay E. Sarma, "HiQ: A Hierarchical Q-Learning Algorithm to Solve the Reader Collision Problem," In *Proceedings of the Workshop on RFID and Extended Network: Deployment of Technologies and Applications*, co-located with the *International Symposium on Applications and the Internet (SAINT 2006)*, January 27, 2006.
26. Sivaram Cheekiralla and Daniel W. Engels, "An IPv6-based Identification Scheme," In *Proceedings of the IEEE International Conference on Communications (ICC 2006)*, Istanbul, Turkey, 11-15 June 2006.
27. Stefanie Alki Delichatsios and Daniel W. Engels, "The Albano Passive UHF Tag Antenna: Design and Performance Evaluation," In *Proceedings of the IEEE Symposium on Antennas and Propagation Society (APS)*, July 9-14, 2006.
28. Stefanie Alki Delichatsios, Leena Ukkonen, Daniel W. Engels, Lauri Sydänheimo, and Marku Kivikoski, "Folded Microstrip Patch-Type RFID Tag Antenna Mounted on a Box Corner," In *Proceedings of the IEEE APS International Symposium 2006 (APS 2006)*, 9-14 July 2006.
29. Felicia C.A.I. Cox, Vikas K. Sharma, Alexander M. Klibanov, Bae-Ian Wu, Jin A. Kong, and Daniel W. Engels, "A Method to Investigate Non-Thermal Effects of Radio Frequency Radiation on Pharmaceuticals with Relevance to RFID Technology," In *Proceedings of the 28th Annual IEEE 2006 International Conference of the Engineering in Medicine and Biology Society (IEEE EMBC 2006)*, New York, New York, USA, 30 August - 3 September 2006.
30. Sivaram Cheekiralla, Ariadna Quattoni, and Daniel W. Engels, "Load-Sensitive Routing with Directional Antennas," In *Proceedings of the 17th Annual IEEE International Conference on Personal, Indoor, and Mobile Radio Communications (PIMRC '06)*, Helsinki, Finland, September 11-14, 2006.
31. Sivaram Cheekiralla and Daniel W. Engels, "Viral IP Address Assignment," In *Proceedings of the 31st Annual IEEE Conference on Local Computer Networks (LCN)*, Tampa, Florida, USA, 14-17 November 2006.
32. Sivaram Cheekiralla and Daniel W. Engels, "Performance of TCP with Directional Antennas," In *Proceedings of the 31st Annual IEEE Conference on Local Computer Networks (LCN)*, Tampa, Florida, USA, 14-17 November 2006.
33. In K. Mun, A.B. Kantrowitz, P.W. Carmel, K.P. Mason, and Daniel W. Engels, "Active RFID System Augmented with 2D Barcode for Asset Management in a Hospital Setting," In *Proceedings of the IEEE International Conference on RFID 2007 (IEEE RFID 2007)*, Grapevine, Texas, USA, March 2007.
34. Sivaram Cheekiralla and Daniel W. Engels, "Routing in Heterogeneous Wireless Ad Hoc Networks," In *Proceedings of the Workshop on Wireless*

Mesh and Ad Hoc Networks (WiMAN 2007), held in conjunction with *16th International Conference on Computer Communications Networks 2007 (ICCCN 2007)*, Honolulu, Hawaii, USA. August 16, 2007.

35. Darmindra D. Arumugam, Ananyaa Gautham, Gaurov Narayanaswami, and Daniel W. Engels, "Impacts of RF Radiation on the Human Body in a Passive Wireless Healthcare Environment," in *Proceedings of Pervasive Computing Technologies for Healthcare (Pervasive Health 08)*, Tampere, Finland, 31 January - 1 February 2008.
36. Darmindra Arumugam and Daniel W. Engels, "Characterization of RF Propagation in Helical and Toroidal Metal Pipes for Passive RFID Systems," in *Proceedings of IEEE International Conference on RFID 2008*, April 16-17, 2008, Las Vegas, NV.
37. Jun Sung Choi, Hyun Lee, Daniel W. Engels, and Ramez Elmasri, "Robust and Dynamic Bin Slotted Anti-Collision Algorithms in RFID System," in *Proceedings of IEEE International Conference on RFID 2008*, April 16-17, 2008, Las Vegas, NV.
38. Dilek Dagdelen Uysal, Jean-Pierre Emond, and Daniel W. Engels, "Evaluation of RFID Performance for a Pharmaceutical Distribution Chain: HF vs. UHF," in *Proceedings of IEEE International Conference on RFID 2008*, April 16-17, 2008, Las Vegas, NV.
39. Darmindra D. Arumugam and Daniel W. Engels, "Impacts of RF Radiation on the Human Body in a Passive RFID Environment," in *Proceedings of IEEE Symposium on Antennas and Propagation Society (APS)*, San Diego, CA, USA, July 5 - 12, 2008.
40. Darmindra D. Arumugam and Daniel W. Engels, "Specific Absorption Rates in the Human Head and Shoulder for Passive UHF RFID Systems at 915MHz," in *Proceedings of the XXIX General Assembly of the International Union of Radio Science (2008 URSI General Assembly)*. Chicago, IL, USA, August 7-17, 2008.
41. Darmindra D. Arumugam and Daniel W. Engels, "Characterization of RF Propagation in Muscle Tissue for Passive UHF RFID Tags," in *Proceedings of the XXIX General Assembly of the International Union of Radio Science (2008 URSI General Assembly)*. Chicago, IL, USA, August 7-17, 2008.
42. Darmindra D. Arumugam and Daniel W. Engels, "Specific Absorption Rates in Muscle Tissues for UHF RFID Reader Systems," in *Proceedings of the XXIX General Assembly of the International Union of Radio Science (2008 URSI General Assembly)*. Chicago, IL, USA, August 7-17, 2008.
43. Darmindra D. Arumugam, Daniel W. Engels, and Marlin H. Mickle, "Method for the real-time localization of passive SAW-based RFID systems around corners," in *International Conference on Military Communications (MIL-COM 2008)*, San Diego, CA, USA, November 17-19, 2008.

44. Darmindra D. Arumugam, Daniel W. Engels, and Marlin H. Mickle, "An Analysis of Surface/Wire Currents and Charges of Commercially Available Passive UHF RFID Tag Antennas," in *IEEE International Radio and Wireless Symposium*, San Diego, CA, USA, January 18-22, 2009.
45. Darmindra D. Arumugam, Daniel W. Engels, and Marlin H. Mickle, "Specific Absorption Rates in Muscle Tissues for Passive UHF RFID Tag Backscatter," in *IEEE International Radio and Wireless Symposium (RWS 2009)*, San Diego, CA, USA, January 18-22, 2009.
46. Darmindra D. Arumugam, Daniel W. Engels, and Marlin H. Mickle, "The use of Flare Structures in Increasing the Performance of Passive UHF RFID Tags within Metal Pipes," in *IEEE International Radio and Wireless Symposium*, San Diego, CA, USA, January 18-22, 2009.
47. Darmindra D. Arumugam, Daniel W. Engels, and Marlin H. Mickle, "Analysis of Orientation Dependence of Passive UHF RFID Tags in Wrist Straps for use in the Identification of Human Beings," in *IEEE International Radio and Wireless Symposium*, San Diego, CA, USA, January 18-22, 2009.
48. Nikhil Ayer and Daniel W. Engels, "Evaluation of ISO 18000-6C Artifacts," In *IEEE International Conference on RFID*, Orlando, FL, USA April 27-28, 2009.
49. R.S. Khasgiwale, R.U. Adyanthaya, and D.W. Engels, "Extracting Information from Tag Collisions," In *IEEE International Conference on RFID*, Orlando, FL, USA April 27-28, 2009.
50. Darmindra D. Arumugam and Daniel W. Engels, "Characterization of Passive UHF RFID Tags in Toroidal Metal Pipes," in *IEEE APS/URSI Antennas and Propagation Society International Symposium 2009*, Charleston, SC, USA, June 1-5, 2009.
51. Darmindra D. Arumugam and Daniel W. Engels, "Characteristics of Passive UHF RFID Tags on Metal Slabs," in *IEEE APS/URSI Antennas and Propagation Society International Symposium 2009*, Charleston, SC, USA, June 1-5, 2009.
52. Darmindra D. Arumugam and Daniel W. Engels, "Characteristics of Passive UHF RFID Tags on Liquids," in *IEEE APS/URSI Antennas and Propagation Society International Symposium 2009*, Charleston, SC, USA, June 1-5, 2009.
53. Darmindra D. Arumugam and Daniel W. Engels, "The Utility of Negative Refractive Index Metamaterials as Passive UHF RFID Tag Inlays," in *IEEE APS/URSI Antennas and Propagation Society International Symposium 2009*, Charleston, SC, USA, June 1-5, 2009.
54. Jae Sung Choi, Hyun Lee, Ramez Elmasri, and Daniel W. Engels, "Localization Systems Using Passive UHF RFID," in *2009 Fifth International Joint Conference on INC, IMS, and IDC*, Seoul, Korea, August 25-27, 2009.

55. X. Fan, H. Hu, G. Gong, E.M. Smith, and D.W. Engels, "Lightweight Implementation of Hummingbird Cryptographic Algorithm on 4-bit Microcontrollers," in *First International Workshop on RFID Security and Cryptography 2009 (RISC'09)*, London, UK, November 10, 2009.
56. D.W. Engels, X. Fan, G. Gong, H. Hu, and E.M. Smith, "Hummingbird: Ultra-Lightweight Cryptography for Resource Constrained Devices," in *First International Workshop on Lightweight Cryptography for Resource Constrained Devices (WLC'2010)*, LNCS 6054, pp 3-18, Tenerife, Canary Islands, Spain, January 25-28, 2010.
57. G. Narayanaswamy, S.K. Jagannatha, and D.W. Engels, "Blocking Reader: Design and Implementation of a Low-Cost Passive UHF RFID Blocking Reader," in *IEEE International Conference on RFID 2010 (IEEE RFID 2010)*, Orlando, Florida, USA, April 14-16, 2010.
58. G. Narayanaswamy, S.K. Jagannatha, and D.W. Engels, "Performance of a Blocking Reader on a Human Body," in *2010 IEEE International Symposium on Antennas and Propagation (APS2010)*, Toronto, Ontario, Canada. July 11-17, 2010.
59. A. Jain, S. Agarwal, and D.W. Engels, "Effect of Human on Radiation Pattern of Passive UHF RFID Tag," in *2010 IEEE International Symposium on Antennas and Propagation (APS2010)*, Toronto, Ontario, Canada. July 11-17, 2010.
60. A. Jain, S. Agarwal, S.K. Jagannatha, and D.W. Engels, "Performance Analysis of Alien Squiggle Tag in Human Presence," in *2010 IEEE International Symposium on Antennas and Propagation (APS2010)*, Toronto, Ontario, Canada. July 11-17, 2010.
61. Paul Krier, Sai Nava Patanjali Seshabhattar, Jason Pereira, Daniel W. Engels, and Suku Nair, "Lightweight Key Agreement with Key Chaining," In *Proceedings of MeshTech 2010*, San Francisco, CA, USA, November 8, 2010.
62. Sai Nava Patanjali Seshabhattar, Priyanka Nirmala Yenigalla, Paul Krier, and Daniel W Engels, "Hummingbird Key Establishment Protocol For Low-Power ZigBee," In *Proceedings of the IEEE Consumer Communications and Networking Conference (CCNC 2011)*, Las Vegas, Nevada, USA, January 9-12, 2011.
63. Paul Krier, Sai Nava Patanjali Seshabhattar, Daniel W Engels, and Suku Nair, "Cloaking RFID Tags," In *Proceedings of the IEEE Consumer Communications and Networking Conference (CCNC 2011)*, pp 1036-1040, Las Vegas, Nevada, USA, January 9-12, 2011.
64. Daniel Engels, Markku-Juhani O. Saarinen, Peter Schweitzer, and Eric M. Smith, "The Hummingbird-2 Lightweight Authenticated Encryption Algorithm." A. Juels and C. Paar (Eds.): *RFIDsec 2011*, LNCS 7055, pp. 19–31. Springer, Heidelberg (2011).

65. S. Seshabhattar, S.K. Jagannatha, and D.W. Engels, "Security Implementation within GEN2 Protocol," in Proceedings of 2011 IEEE International Conference on RFID-Technologies and Applications (RFID-TA), pp. 402 - 407, 15-16 Sept 2011.
66. Jae Sung Choi, Mingon Kang, Ramez Elmasri, and Daniel W. Engels, "Investigation of Impact Factors for Various Performances of Passive UHF RFID System," in Proceedings of 2011 IEEE International Conference on RFID-Technologies and Applications, pp 152-159, 15-16 Sept 2011.
67. Xinxin Fan, Guang Gong, Daniel W. Engels, and Eric M. Smith, "A Lightweight Privacy-Preserving Mutual Authentication Protocol for RFID Systems," In Proceedings of 2011 IEEE Globecom Workshops, pp 1083-1087, 5-9 Dec. 2011.
68. Markku-Juhani O. Saarinen and Daniel W. Engels, "A Do-It-All Cipher for RFID: Design Requirements," Directions in Authenticated Ciphers (DIAC), Stockholm, Sweden, 5-6 July 2012.
69. Pedro Reyes, Daniel W. Engels, and Jaska, "The Use of RFID Systems in Humanitarian Operations and Crisis Management," in Proceedings of 12th International Decision Sciences Institute & the 18th Asia Pacific DSI Conference, July 9-13, 2013. Bali, Indonesia.
70. Daniel W. Engels, Yousung Kang, and Junyu Wang, "On Security with the New Gen2 RFID Security Framework," in Proceedings of IEEE International Conference on RFID 2013, Orlando, FL. USA, April 29-May 2 2013.
71. Charlie A Albright, Spencer A. Kaiser, Luke W. Oglesbee and Daniel W. Engels, "Forward Error Correction in Passive UHF Gen2 Communications," in Proceedings of IEEE International Conference on RFID, San Diego, CA, USA, April 15-17, 2015.
72. Shaibal Chakrabarty, Salena Thathapudi and Daniel W. Engels, "Black SDN for the Internet of Things," in Proceedings of the 12th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2015), Dallas, TX, USA, October 19-22 2015.
73. Shaibal Chakrabarty and Daniel W. Engels, "A Secure IoT Architecture for Smart Cities," in Proceedings of IEEE CCNC 2016. Las Vegas, NV, USA. 2016.
74. Shaibal Chakrabarty and Daniel W. Engels, "Black Networks for Bluetooth Low Energy," in Proceedings of IEEE ICCE 2016. Las Vegas, NV, USA. 2016. (Best Paper Award Winner)
75. Shaibal Chakrabarty, Monica John, and Daniel W. Engels, "Black Routing and Node Obscuring in IoT," in Proceedings of IEEE World Forum on the Internet of Things (WF-IoT) 2016. Reston, VA, USA December 2016.

76. Saurabh Gupta, Jennifer Dworak, Daniel Engels, Al Crouch, "Mitigating Simple Power Analysis Attacks on LSIB Key Logic," in Proceedings of IEEE North Atlantic Test Workshop (NATW), Providence, RI, USA, 8-10 May 2017.
77. Saurabh Gupta, Al Crouch, Jennifer Dworak, Daniel Engels, "Increasing IJTAG Bandwidth and Managing Security Through Parallel Locking-SIBs," in Proceedings of IEEE International Test Conference (ITC), Fort Worth, TX, USA, 31 Oct-2 Nov 2017.
78. Eman Ababtain and Daniel Engels, "Gesture Based CAPTCHAs the Use of Sensor Readings to Solve CAPTCHA Challenge on Smartphones," 2019 International Conference on Computational Science and Computational Intelligence (CSCI), pp. 113-119, Las Vegas, NV, USA, 2019.
79. Eman Ababtain and Daniel Engels, "Security of Gestures Based CAPTCHAs," 2019 International Conference on Computational Science and Computational Intelligence (CSCI), pp. 120-126, Las Vegas, NV, USA, 2019.
80. Shaibal Chakrabarty, Daniel W. Engels, and Luke Wood, "Consumer Frameworks for Smart Environments," in Proceedings of International Conference on Consumer Electronics - Berlin, 9-12 November 2020.
81. Shaibal Chakrabarty and Daniel W. Engels, "Secure Smart Cities Framework Using IoT and AI," in Proceedings of Global Conference on Artificial Intelligence & Internet of Things (GCAIoT) 2020, 12-16 December 2020.
82. Shaibal Chakrabarty, Daniel W. Engels, and Luke Wood, "Smart City Mobile IoT Management with DLTs," in Proceedings of the International Conference on Consumer Electronics, 10-12 January 2021.
83. Shaibal Chakrabarty and Daniel W. Engels, "The Social and Ethical Implications of Smart Environments in the Age of Big Data," in Proceedings of Smart System International Conference (SSIC), 2021.
84. Michael Lefebvre, Suku Nair, Daniel W. Engels, and Dwight Horne, "Building a Software Defined Perimeter (SDP) for Network Introspection," in Proceedings of IEEE Conference on Network Function Virtualization and Software Defined Networks (IEEE NFV-SDN 2021), 9-11 November 2021. (accepted for publication)

SMU Data Science Review

1. Lee, Brian; Amaresh, Sandhya; Green, Clifford; and Engels, Daniel W., "Comparative Study of Deep Learning Models for Network Intrusion Detection," *SMU Data Science Review*, Vol. 1, No. 1, 2018.
2. Wallmark, Marie; Greenberg, Eyal; and Engels, Daniel W., "Consumer Welfare and Price Discrimination: A Fine Line," *SMU Data Science Review*, Vol. 1, No. 1, 2018.

3. Mares, Miguel; Gilles, Salomon; Gobran, Brian D.; and Engels, Daniel W., "How Much Privacy Do We Have Today? A Study of the Life of Marc Mezvinsky," *SMU Data Science Review*, Vol. 1, No. 1, 2018.
4. Godfrey-Welch, Darlene; Lagrois, Remy; Law, Jared; Anderwald, Russell Scott; and Engels, Daniel W., "Blockchain in Payment Card Systems," *SMU Data Science Review*, Vol. 1, No. 1, 2018.
5. Cline, Vishi; Dharwadkar, Abhishek; Goyal, Rajni; Engels, Daniel W.; Srinivas, Raghuram; and Rafiqi, Sohail, "Stack Overflow Question Retrieval System," *SMU Data Science Review*, Vol. 1, No. 2, 2018.
6. Yao, Yao; Angelov, Ivelin; Rasmus-Vorrath, Jack; Lee, Mooyoung; and Engels, Daniel W., "Yelp's Review Filtering Algorithm," *SMU Data Science Review*, Vol. 1, No. 3, 2018.
7. Karanja, Alice; Engels, Daniel W.; Zerouali, Ghizlane; and Francisco, Ariel, "Unintended Consequences of Location Information: Privacy Implications of Location Information Used in Advertising and Social Media," *SMU Data Science Review*, Vol. 1, No. 3, 2018.
8. Azhar, Hassan; Allam, Zoheb; Varghese, Gino; Engels, Daniel W.; and John, Sajiny, "Minimizing the Perceived Financial Burden Due to Cancer," *SMU Data Science Review*, Vol. 1, No. 3, 2018.
9. Przybyla, Matthew; Tran, David; Whelpley, Amber; and Engels, Daniel W., "Finding Truth in Fake News: Reverse Plagiarism and other Models of Classification," *SMU Data Science Review*, Vol. 1, No. 4, 2018.
10. Alvarado, Cynthia; Devadoss, Nithya; Rivens, Rob; and Engels, Daniel W., "It's Your Data: A Blockchain Solution to Facebook's Data Stewardship Problem," *SMU Data Science Review*, Vol. 1, No. 4, 2018.
11. Barry-Straume, Jostein; Tschannen, Adam; Engels, Daniel W.; and Fine, Edward, "An Evaluation of Training Size Impact on Validation Accuracy for Optimized Convolutional Neural Networks," *SMU Data Science Review*, Vol. 1, No. 4, 2018.
12. Atakpa, Atsu; Farrugia, Emmanuel; Tyree, Ryan; Engels, Daniel W.; and Sparks, Charles, "Improving Gas Well Economics with Intelligent Plunger Lift Optimization Techniques," *SMU Data Science Review*, Vol. 1, No. 4, 2018.
13. Lubich, Jeremy; Thomas, Kyle; and Engels, Daniel W., "Identification and Classification of Poultry Eggs: A Case Study Utilizing Computer Vision and Machine Learning," *SMU Data Science Review*, Vol. 2, No. 1, 2019.
14. Gozdziński, Scott; Stern, Alex; Fasere, Ireti; and Engels, Daniel W., "The Simultaneous Detection and Classification of Mass and Calcification Leading to Breast Cancer in Mammograms," *SMU Data Science Review*, Vol. 2, No. 1, 2019.

15. Geislinger, Dana; Thigpen, Cory; and Engels, Daniel W., "Longitudinal Analysis with Modes of Operation for AES," *SMU Data Science Review*, Vol. 2, No. 2, 2019.
16. Morgan, Christopher D.; Rodriguez, Carroll; MacVittie, Korey; Slater, Robert; and Engels, Daniel W., "Identifying Undervalued Players in Fantasy Football," *SMU Data Science Review*, Vol. 2, No. 2, 2019.
17. Lazenby, Gregory A.; Wong, Kim; and Engels, Daniel W., "A Personalized Approach to Understanding Human Emotions," *SMU Data Science Review*, Vol. 2, No. 2, 2019.
18. Tanyuk, Olha; Davieau, Daniel; South, Charles; and Engels, Daniel W., "Machine Learning Predicts Aperiodic Laboratory Earthquakes," *SMU Data Science Review*, Vol. 2, No. 2, 2019.
19. Ludwig, Laura; Hightower, Mallory; Engels, Daniel W.; and McGee, Monnie, "Analyzing Influences on U.S. Baby Name Trends," *SMU Data Science Review*, Vol. 2, No. 3, 2019.
20. Shaw, David; and Engels, Daniel W., "The Data Market: A Proposal to Control Your Data," *SMU Data Science Review*, Vol. 2, No. 3, 2019.
21. Crane, Allen; Freidrich, Brock; Fehlman, William; Frolov, Igor; and Engels, Daniel W., "A Novel Methodology to Identify the Primary Topics Contained within the COVID-19 Research Corpus," *SMU Data Science Review*, Vol. 3, No. 2, 2020.

Other Major Publications

1. Daniel W. Engels, Robin Koh, Elaine Lai, and Edmund Schuster, Improving Visibility in the DoD Supply Chain, *Army Logistician*, 36(3): 20-23, May/June 2004.
2. Ed Schuster, Daniel W. Engels, and Robin Koh, RFID vs Auto-ID, *APICS eNews*, Vol. 4, No. 1. APICS - The Educational Society for Resource Management, Alexandria, Virginia, January 2004.

Technical Reports

1. Daniel W. Engels, Real-Time Task Level Scheduling in the Polis Co-Design Environment, Technical Report UCB/ERL M95/101, Electronics Research Laboratory, University of California, Berkeley, 1995.
2. Daniel W. Engels, David Karger, and Srinivas Devadas, Complexity results for Single Machine Distance Constrained Scheduling Problems, Technical Report MIT-LCS-TM-587, Laboratory for Computer Science, Massachusetts Institute of Technology, 1998.
3. Daniel W. Engels, The Graticule Coordinate Code, Technical Report MIT-AUTOID-TM-001, Auto-ID Center, Massachusetts Institute of Technology, November 2000.

4. Daniel W. Engels, A Review of the GTAG Proposal, Technical Report MIT-AUTOID-TM-002, Auto-ID Center, Massachusetts Institute of Technology, November 2000.
5. Daniel W. Engels, The Reader Collision Problem, Technical Report MIT-AUTOID-WH-007, Auto-ID Center, Massachusetts Institute of Technology, November 2001.
6. Silvio Albano and Daniel W. Engels, Auto-ID Center Field Trial: Phase I Summary, Technical Report MIT-AUTOID-TR-006, Auto-ID Center, Massachusetts Institute of Technology, June 2002.
7. Daniel W. Engels, On the Design of Globally Unique Identification Schemes, Technical Report MIT-AUTOID-TM-007, Auto-ID Center, Massachusetts Institute of Technology, June 2002.
8. Daniel W. Engels, A Comparison of the Electronic Product Code Identification Scheme and the Internet Protocol Address Identification Scheme, Technical Report MIT-AUTOID-TM-008, Auto-ID Center, Massachusetts Institute of Technology, June 2002.
9. Daniel W. Engels, The Use of the Electronic Product Code, Technical Report MIT-AUTOID-TM-009, Auto-ID Center, Massachusetts Institute of Technology, February 2003.
10. Daniel W. Engels, EPC-256: The 256-bit Electronic Product Code Representation, Technical Report MIT-AUTOID-TM-010, Auto-ID Center, Massachusetts Institute of Technology, February 2003.
11. Sanjay Sarma and Daniel W. Engels, On the Future of RFID Tags and Protocols, Technical Report MIT-AUTOID-TR-018, Auto-ID Center, Massachusetts Institute of Technology, June 2003.
12. Daniel W. Engels, Healthcare Research Initiative: Research Plan 2005-2008, Technical Report MIT-HRI-TM-001, Healthcare Research Initiative, Massachusetts Institute of Technology, 7 February 2005. Revised 6 August 2005.
13. Daniel W. Engels and In Ki Mun, Using the FEI in a Unique Object Identification Scheme, Technical Report MIT-HRI-TM-002, Healthcare Research Initiative, Massachusetts Institute of Technology, 1 July 2005.
14. Robert J. Zanghi, Daniel W. Engels, and James J. Sheehan, Fundamentals of Object Attributes and Object Identification, Technical Report MIT-HRI-TM-003, Healthcare Research Initiative, Massachusetts Institute of Technology, 7 July 2005. Revised 12 August 2005.
15. Daniel W. Engels, On Ghost Reads in RFID Systems, Technical Report AUTOIDLABS-WP-SWNET-010, Auto-ID Labs, September 2005.
16. Daniel W. Engels and Sanjay E. Sarma, Standardization Requirements within the RFID Class Structure Framework, Technical Report AUTOIDLABS-WP-SWNET-011, Auto-ID Labs, September 2005.

17. Kin Seong Leong, Mun Leng Ng, and Daniel W. Engels, EPC Network Architecture, Technical Report AUTOIDLABS-WP-SWNET-012, Auto-ID Labs, September 2005.
18. Damith C. Ranasinghe, Daniel W. Engels, and Peter H. Cole, Low-Cost RFID Systems: Confronting Security and Privacy, Technical Report AUTOIDLABS-WP-SWNET-013, Auto-ID Labs, September 2005.
19. Peter H. Cole and Daniel W. Engels, Auto-ID 21st Century Supply Chain Technology, Technical Report AUTOIDLABS-WP-SWNET-015, Auto-ID Labs, September 2005.
20. Jonathan Wolk, Richard Redemski, Uttara Marti, Rich Fletcher, and Daniel W. Engels, Packaging and RFID: Incorporating RFID in the Real World, Technical Report AUTOIDLABS-WP-HARDWARE-021, Auto-ID Labs, September 2005.
21. Daniel W. Engels, Review of RFID Technologies, Technical Report MIT-HRI-TM-004, Healthcare Research Initiative, Massachusetts Institute of Technology, 22 October 2005.
22. D. Engels, X. Fan, G. Gong, H. Hu and E. Smith Ultra-lightweight Cryptography for Low-cost RFID Tags: Hummingbird Algorithm and Protocol, Technical Report, CACR 2009-29, Center for Applied Cryptographic Research, University of Waterloo, 2009.

Theses Supervised by Daniel W. Engels, Ph.D.

Bachelor's Theses

1. Lai, Elaine M., "An Analysis of the Department of Defense Supply Chain: Potential Applications of the Auto-ID Technology to Improve Effectiveness," Bachelor's Thesis. Massachusetts Institute of Technology. May 2003.
2. Delichatsios, Stefanie Alki, "UHF Antenna Design for RFID Packaging Environment," Bachelor's Thesis. Massachusetts Institute of Technology. May 2005.
3. Okano, Stephen Hiroshi, "An Automated Secure Distributed Management System," Bachelor's Thesis. Massachusetts Institute of Technology. June 2005.
4. Bridge, Michael Christopher, "UHF Passive RFID Tag Antenna Design for a Bottle of Water," Bachelor's Thesis. Massachusetts Institute of Technology. May 2006.
5. Desai, Mayur, "A Network-Layer Analysis of Wireless Traffic at MIT," Bachelor's Thesis. Massachusetts Institute of Technology. May 2006.

Master's Theses

1. Lee, Rusty, "VORTOS: Versatile Object-oriented Real-Time Operating System," Master of Engineering. Massachusetts Institute of Technology. May 2001.
2. Yu, Kenneth Kwan-Wai, "RFIDSim - A Discrete Event Simulator for Radio Frequency Identification Systems," Master of Engineering. Massachusetts Institute of Technology. September 2003.
3. Ho, Junius, "Solving the Reader Collision Problem with a Hierarchical Q-Learning Algorithm," Master of Engineering. Massachusetts Institute of Technology. February 2003.
4. Schannon, David R., "The Impact of Radio Frequency Identification on the Sarbanes-Oxley Act of 2002," Master of Engineering. Massachusetts Institute of Technology. May 2005.
5. Marti, Uttara P., "Enhancement of Electromagnetic Propagation Through Complex Media for Radio Frequency Identification," Master of Engineering. Massachusetts Institute of Technology. June 2005.
6. Wolk, Jonathan E., "Graphical Real-Time Simulation Tool for Passive UHF RFID Environments," Master of Engineering. Massachusetts Institute of Technology. June 2005.
7. Yu, Joseph Hon, "Auto-configuration of Savants in a Complex, Variable Network," Master of Engineering. Massachusetts Institute of Technology. June 2005.
8. Redemske, Richard Michael, "An Electromagnetic Measurement Tool for UHF RFID Diagnostics," Master of Engineering. Massachusetts Institute of Technology. September 2005.
9. Delichatsios, Stefanie Alkistis, "Multi-Dimensional Ultra-High Frequency Passive Radio Frequency Identification Tag Antenna Designs," Master of Engineering. Massachusetts Institute of Technology. June 2006.
10. Uysal, Dilek Dagdelen, "Improving the Readability of RFID Tagged Pharmaceutical Products and Food Supplements Inside a Modified Sealed Tote," Master of Science, University of Florida, December 2007. (Co-Advisor)
11. Arumugam, Darmindra, "Characterization of Radio Frequency (RF) Propagation in Metal Pipes for Passive Radio Frequency Identification (RFID) Systems," Master of Science, University of Texas at Arlington, December 2007.
12. Gautham, Ananyaa, "Practical Evaluation and Analysis of Passive UHF RFID Tags," Master of Science, University of Texas at Arlington, May 2008.
13. Ayer, Nikhil, "Evaluation of ISO 18000-6 Type-C Class 1 Generation 2 RFID Protocol Artifacts," Master of Science, University of Texas at Arlington, December 2008.

14. Alvarez, Carmen, "Measurement Evaluation of RFID Systems for 'First Strike Rations' Application," Master of Science, University of Texas at Arlington, May 2009.
15. Jain, Amit, "Athena: RFID Tag Metrics," Master of Science, University of Texas at Arlington, December 2009.
16. Khasgiwale, Rushikesh, "Utilizing Physical Layer Information to Improve RFID Tag Identification Rate," Master of Science, University of Texas at Arlington, December 2009.
17. Narayanaswamy, Gaurov, "Blocking Reader: Design and Implementation of a Passive UHF RFID Blocking Reader," Master of Science, University of Texas at Arlington, December 2009.
18. Pereira, Jason Francis, "Theia: Radio Frequency Identification Performance Analysis Tool," Master of Science, University of Texas at Arlington, December 2009.
19. Seshabhattar, Sai Nava Patanjali, "Comparison of the Hardware Implementation of Multiple Cryptographic Algorithms to Determine Their Suitability for Passive UHF RFID Systems," Master of Science, University of Texas at Arlington, December 2009.
20. Desai, Pranav, "Implementation of Autonomous Navigation and Obstacle Avoidance on an Unmanned Ground Vehicle," Master of Science, University of Texas at Arlington, May 2010.
21. Chopra, Kirti, "Physics Behind RFID Smart Card Security in Context of Privacy," Master of Science, University of Texas at Arlington, May 2010.
22. Spring, Michael Tyler, "The Unreliable Assignment Problem," Master of Science, Southern Methodist University, May 2016.
23. O'Connor, William, "Classification and Time Series Forecasting: Applications in the Stock Market," Master of Science, Southern Methodist University, May 2016.
24. John, Monica, "Mitigating Traffic Analysis Attacks in Wireless Ad Hoc Black Networks," Master of Science, Southern Methodist University, December 2016.
25. Gangloff, Nicholas A., "Rights of Data," Master of Science, Southern Methodist University, May 2017.

Doctoral Theses - Reader

1. Jamali, Benham, "High-Performance RFID Systems," Doctor of Philosophy, University of Adelaide, Adelaide, Australia. November 2005.
2. Foley, Joseph, "Security Approaches for Radio Frequency Identification Systems," Doctor of Philosophy, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA. December 2006.

3. Ranasinghe, Damith, “New Directions in Advanced RFID Systems,” Doctor of Philosophy, University of Adelaide, Adelaide, Australia. May 2007.
4. Ng, Mun Leng, “Design of High Performance RFID Systems for Metallic Item Identification,” Doctor of Philosophy, University of Adelaide, Adelaide, Australia. November 2008.
5. Jiang, Wei, “Multi-Port Power Electronic Interface for Renewable Energy Sources,” Doctor of Philosophy, University of Texas at Arlington, Arlington, Texas, USA. September 2009.
6. Lee, Hyun, “Context Reasoning Under Uncertainty Based on Evidential Fusion Networks in Home-Based Care,” Doctor of Philosophy, University of Texas at Arlington, Arlington, Texas, USA. August 2010.
7. Choi, Jae Sung, “Accurate and Cost Efficient Object Localization System Using Passive UHF RFID,” Doctor of Philosophy, University of Texas at Arlington, Arlington, Texas, USA. May 2011.
8. Hall, David. “Antennas, Waves, and Circuits in Radio Frequency Identification,” Doctor of Philosophy, University of Adelaide, Adelaide, Australia. December 2011.
9. Al Ibrahim, Omar, “Security Fusion: A New Security Architecture for Resource-Constrained Embedded Environments,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. May 2012.
10. Papa, Steve M., “A Behavioral Intrusion Detection System for SCADA Systems,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. May 2013.
11. Riedesel, Stark N., “Cost-Performance Analysis of Cloud-Based Biometric Systems,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. May 2014.
12. Abraham, Subil M., “Cybersecurity Analytics: Stochastic Models for Security Quantification,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. May 2016.
13. Gupta, Saurabh, “Improving System-on-Chip Test Networks for: Bandwidth, Security and Power,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. May 2018.
14. Horne Jr., R. Dwight, “The Prom Problem: Fair and Privacy-Enhanced Matchmaking with Identity Linked Wishes,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA, May 2020.

Doctoral Theses

1. Sivaram Cheekiralla, “Routing in Heterogeneous Wireless Ad Hoc Networks,” Doctor of Philosophy, Massachusetts Institute of Technology, Cambridge, MA, USA. June 2008.

2. Shaibal Chakrabarty, “Black Networks in Smart Cities,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. December 2018.
3. Eman Ababtain, “Gestures Based CAPTCHAs: The Use of Sensor Readings to Solve CAPTCHA Challenge on Smartphones,” Doctor of Philosophy, Southern Methodist University, Dallas, Texas, USA. May 2020.

Academic Conference Invited Keynotes

1. *Enabling Low-Cost RFID Systems*, presented at AutoID’02, Third Workshop on Automatic Identification Advanced Technologies, White Plains, New York, USA. March 2002.
2. *RFID Commercialization and Deployment*, presented at Design and Developers Forum, Globecom 2004, Dallas, TX, USA. December 1, 2004.
3. *Secure RFID*, presented at RFID Integrated Supply Chains 2008 Symposium, Baylor University, Waco, TX, USA. September 18, 2008.
4. *The Security Challenge of RFID Systems: Feasible Encryption for Passive UHF RFID Systems*, presented at CJK+T Auto-ID Labs Workshop, NTUST, Taipei, Taiwan, December 13, 2009.
5. *The Security Challenge of RFID Systems*, presented at 2009 Asia Pacific International Conference on RFID and Exhibition, Taipei International Convention Center, Taipei, Taiwan, December 15, 2009.
6. *Securing Automated Identification Systems*, the 2011 Auto-ID Institute, University of Ohio, Athens, OH, USA, July 15, 2011.
7. *Security and Automated Identification Systems*, the 2012 Auto-ID Institute, University of Ohio, Athens, OH, USA, July 13, 2012.
8. *Bringing Security to Passive UHF RFID: The HB2 Case Study*, presented at the 2012 Internet of Things Conference, Wuxu, China, October 22, 2012.
9. *Security and the Internet of Things (IoT) Systems*, the 2014 Auto-ID Institute, University of Memphis, Department of Engineering Technology, Memphis, TN, USA. June 2014.
10. *Security and Privacy in an Internet of Things World*, presented at IEEE International Conference on RFID Brasil, Sao Paulo, SP, Brazil, September 25, 2014.

Academic Conference Workshop Tutorials

1. *Malleable Caches for Data Intensive Computing*, presented at SBCCI 2000, 13th Symposium on Integrated Circuits and Systems Design, September 2000.

Selected Invited Presentations

1. *Passive RFID Adoption*, presented at RFID World Asia, Singapore, April 27, 2006.
2. *The Impact of RF Radiation on Protein Efficacy*, presented at the Academic Convocation, RFID Journal Live! 2006, Las Vegas, NV, USA, May 1, 2006.
3. *Finding the Lost World: Improving Patient Safety without Chipping Activists*, presented to RFID Tribe, July 14, 2006.
4. *The Physics of RFID: A Manager's Perspective*, presented at RFID World, Grapevine, TX, USA, March 26, 2007.
5. *Serialization and Simple Data Management in an RFID-Enabled World*, presented at RFID World, Grapevine, TX, USA, March 28, 2007.
6. *RFID (Technology) Opportunities for Healthcare and Pharmaceuticals*, invited speaker at the University of Texas, Dallas, TX, USA, June 20, 2007.
7. *RFID Today*, invited speaker at the RFID Pharmaceutical Training Conference, University of Florida, Gainesville, FL, USA, February 4, 2008.
8. *RFID Opportunities in Healthcare*, presented at 2008 Arab RFID Conference, Dubai, UAE, October 12, 2008.
9. *Radio Frequency Identification (RFID)*, invited speaker at the University of Campinas (UNICAMP), Campinas, SP, Brazil, October 24, 2008.
10. *Practical Passive RFID*, invited speaker at the University of Louisville, Louisville, KY, USA, November 6, 2008.
11. *RFID Security: Understanding the Real Issues*, invited speaker at the University of Louisville, Louisville, KY, USA, November 6, 2008.
12. *Current and Future Challenges, or What Does the Magic 8 Ball Say?*, invited speaker at the UF Academic Cold Chain '09 Pharmaceutical Conference, University of Florida, Gainesville, FL, USA, February 9, 2009.
13. *Securing the Edge of the Network*, invited speaker at Southern Methodist University, Dallas, TX, USA, October 27, 2010.
14. *The Technology Powering IoT*, presented at RFID Journal Live! 2013, Orlando, FL, USA, May 2, 2013.
15. *Merging the Worlds of Bits and Atoms*, invited speaker at Southern Methodist University, Dallas, TX, USA, June 10, 2013.
16. *RFID: The Shark or the Goldfish*, invited speaker at the University of South Florida, Department of Electrical Engineering, April 2014.

17. *On Security with the New Gen2 RFID Security Framework*, invited speaker at Fudan University, Micro-Electronics Institute, Shanghai, China, July 26, 2014.
18. *Security and Privacy in an Internet of Things World*, invited speaker at Industry of IC Design in Shanghai (ICC), Shanghai, China to the Shanghai RFID and IoT Alliance, July 28, 2014.
19. *Cybersecurity*, invited speaker at IEEE and MEANT Envision 2025, 3rd National Conference on Emerging Trends in Engineering, Richardson, Texas, USA, October 10, 2015.