

Robert K. Abercrombie, Ph.D.

Background Summary

Program Manager/Principal Investigator with extensive experience in all phases of program and project life cycle management from requirements definition through retirement and closeout of system. Additional strengths include technical management of R&D multi-disciplinary complex endeavors and their supply chain management. Conducted research and managed military and civilian projects dealing the characterization of vehicles and cargo prior to and during deployments, re-deployments, retrogrades, and re-constitution during operations from the end of the Cold War to present day engagements. In recent years, research interests and endeavors include cyber security and information assurance technologies in secure environments and transitioning this research to the private sector via ORNL technology transfer process. Current long-term research efforts deal with developing break-through approaches for analytic capabilities that work across heterogeneous data sets and addressing the necessary computational intelligence techniques to accomplish the task.

Summary of qualifications

1980 – Present Oak Ridge Complex (Y-12 & ORNL) Oak Ridge, TN

Senior Program Manager/Technical Program Manager/Principal Investigator

- Led/conducted information infrastructure and information technology research projects related to general computational intelligence, modeling and simulation, cyber security and information assurance technologies, transportation, logistics and supply chain endeavors of high risk, high payoff of national importance both domestically and overseas.
- Managed multi-disciplinary professional team with multi-year, multi-million dollar budgets (~\$2-3M per year). Funding received via DOE, WFO and competitive BAAs.

1975 – 1979

Pre-doctoral and Post-doctoral Fellow

- Conducted technical independent research that provided foundation for further accomplishments.

Work experience

2011 – Present ORNL Oak Ridge, TN

Co-Director, Computational Intelligence Behavior Modeling Laboratory, S&T Manager and Principal Investigator in CSED, ORNL

- DOE lead for unclassified and classified programmatic activities for a variety of military and civilian agencies.
- S&T Manager and Principal Investigator responsible for programmatic and technical management of specialized programs for other government agencies at ORNL via DOE "Work for Others" Program concerning the Computational Intelligence Behavior Modeling Laboratory at ORNL
- S&T Manager and Principal Investigator responsible for leading and conducting research in high-risk computer information infrastructure projects in DOE and other WFO sponsors.

2002 – Present ORNL Oak Ridge, TN

S&T Manager, Senior Program Manager and Principal Investigator in CSED, ORNL

- DOE lead for unclassified and classified programmatic activities for a variety of military and civilian agencies.
- S&T Manager, Senior Program Manager and Principal Investigator responsible for programmatic and technical management of specialized programs for other government agencies at ORNL via DOE "Work for Others" Program at ORNL
- S&T Manager and Principal Investigator responsible for leading and conducting research in high-risk computer information infrastructure projects in DOE and other WFO sponsors.

1994 – 2002 MMES/LMES/UT-Battelle at Y-12 Oak Ridge, TN

Senior Program Manager and Principal Investigator in DSRD/NSPO/

- DOE lead for unclassified and classified programmatic activities for a variety of military and civilian

agencies.

- Led and conducted research in high-risk computer information infrastructure projects in DOE and via WFO Program for US Army, US Air Force, US Navy, Joint Military Commands, US Transportation Command, US European Command, DARPA, IARPA, EPA, DOT and DHS domestically and overseas.

1981 – 1982 University of Tennessee, Knoxville, Knoxville, TN

Adjunct Assistant Professor, Department of Electrical Engineering & Computer Science

- Taught (1) Database Systems Design and Theory, and (2) Embedded Network Security Upper Level Undergraduate and Graduate Level Courses.

1980 – 1994 Union Carbide Nuclear Division, MMES Oak Ridge, TN

Group Leader ('82-'94) in Technical Applications & DSRD; Staff ('80-'82) C&TD

- Managed technical groups in Europe, South-West Asia, and in US ('89-'94) for Army and Joint Military Command sponsor with multi-year budget of \$12M.
- Managed technical groups in development of complex computing inspection systems and applications in the DOE Nuclear Weapons Complex ('80-'89).

Education

1978-79 Univ. of Missouri NIH/NLM Post-Doctoral Fellowship in Computer Science and Medical Informatics
1978 University of Tennessee, Knoxville, Ph.D., Physiology/Biomechanics (NIH/NSF Fellowships)
1979 University of Missouri, Columbia, M.S., Computer Science (NIH/NLM Fellowship)
1976 Emory University, Pre-doctoral Research Fellow (Alfred P. Sloan Research Fellowship)
1975 University of Washington, Friday Harbor Marine Laboratories, NSF Pre-doctoral Research Fellow
1973 The College of William & Mary, Williamsburg, VA, B.S., Biology

Professional Memberships

Senior Member of Institute of Electrical and Electronics Engineers (IEEE), Senior Member, IEEE Computational Intelligence Society, Senior Member, IEEE Computer Society, Member of Association of Computing Machinery (ACM), Founding Member of International Society for Weigh-In-Motion (ISWIM). Past membership in American Association for the Advancement of Science (AAAS), Society of Logistics Engineers (SOLE), Institute for Operations Research and the Management Sciences (INFORMS), Military Operations Research Society (MORS), and Armed Forces Communications and Electronics Association (AFCEA). Recent review and program development activities:

2014, 2013, 2011 IEEE Symposium on Computational Intelligence in Cyber Security (CICS'14, CICS'13 CICS'11) – Program Committee Member

2013 World Congress in Computer Science, Computer Engineering, and Applied Computing / 2013 International Conference on Security and Management (SAM'13) - Special Track on "Systems Engineering and Security (STSES'13)" - Session Program Committee Member

2013, 2012 European Conference on the Applications of Evolutionary Computation 2012; evoRISK 2013 - Computational Intelligence for Risk Management, Security and Defence Applications - Program Committee Member

2014, 2013, 2011, 2009 Invited Reviewer, IEEE Symposium Series on Computational Intelligence

2012 IEEE World Congress on Computational Intelligence - Computational Intelligence in Cyber Security Program Committee Member

2014, 2011 World Conference on Security and Management (SAM'11) Special Track on Mission Assurance and Critical Infrastructure Protection (STMACIP'11) – Program Committee Member

2014, 2013, 2012, 2011 Invited Reviewer, Information Systems and e-Business Management Journal, Springer

2014, 2013, 2011, 2010, 2009, 2008 Co-Editor, Proceedings of Annual Workshops on Cyber Security and Information Intelligence Research

2015, 2014, 2013 2011, 2010, 2009, 2008 Invited Reviewer, IEEE Proceedings of Annual Hawaii

Publications

Authored or co-authored over 300 Technical Reports from 1989 to present concentrating on Algorithms of Project Plan Scheduling, Requirements/Functional/Systems Design, Systems and User Acceptance Testing, User Training, Security Plans, and, Configuration Management. Research publications deal with enterprise risk management analysis, information assurance, cyberspace analysis, military and civilian transportation, logistics, storage and replenishment of operational and tactical material equipment and sustainment material.

Patents Issued and Pending:

R. K. Abercrombie, F. T. Sheldon, and E. M. Ferragut, "Cyberspace Security System," U.S. Patent 8,762,188 (June 24, 2014),

R. K. Abercrombie and L. M. Hively, "Method for Forewarning of Critical Condition Changes in Monitoring Civil Structures," U.S. Patent 8,410,952, April 2, 2013.

R. K. Abercrombie, G. D. Richardson, and M. B. Scudiere, "Weigh-In-Motion Scale with Foot Alignment Features," U.S. Patent 8,389,878, March 5, 2013.

R. K. Abercrombie, G. D. Richardson, M. B. Scudiere, and F. T. Sheldon, "Portable Weighing System with Alignment Features," U.S. Patent 8,304,670, November 6, 2012.

R. K. Abercrombie, B. G. Schlicher and F. T. Sheldon, "Scientometrics System and Method for Normalizing Data for Analysis of Search Results," US Patent Pending, June 29, 2012.

R. K. Abercrombie and E. M. Ferragut, "Weigh-In-Motion Estimation via Probabilistic Hidden Variable Modeling," U.S. Patent Application No. 61/641,340, US Patent Pending, May 2, 2012.

R. K. Abercrombie, E. M. Ferragut, and L. M. Hively, "Weight and Piece-Wise Analysis for Weigh-In-Motion," U.S. Patent Application No. 61/641,978, US Patent Pending, May 3, 2012.

R. K. Abercrombie, F. T. Sheldon, and E. M. Ferragut, "Cyberspace Security System," U.S. Patent Application No. 13/443,702, April 10, 2012.

R. K. Abercrombie and E. M. Ferragut, "Cyberspace Security Econometrics System (CSES) Expansion to Address Dependent Events," U.S. Patent Pending (February 15, 2011).

R. K. Abercrombie, "System and Method for Normalizing Data for Analysis of Search Results," U.S. Patent Pending (February 2, 2011).

L. M. Hively and R. K. Abercrombie, "Method and System for Reducing Errors in Vehicle Weighing Systems," U.S. Patent 7,783,450 (August 24, 2010).

R. K. Abercrombie and B. G. Schlicher, "Method and System for Determining a Volume of an Object from Two-Dimensional Images," U.S. Patent 7,773,773 (August 10, 2010).

R. K. Abercrombie, G. D. Richardson, and M. B. Scudiere, "The Potential and Beneficial Use of Weigh-In-Motion (WIM) Systems Integrated with Radio Frequency Identification (RFID) Systems for Characterizing Disposal of Waste Debris to Optimize the Waste Shipping Process," U.S. Patent Pending (February 26, 2010).

L. M. Hively, R. K. Abercrombie, and Frederick T. Sheldon, "Failure Prediction of Complex Structures under Arbitrary Time-Serial Loading Condition," U.S. Patent Pending (August 26, 2009).

R. K. Abercrombie, F. T. Sheldon, and A. Mili, "System and Method for Implementing and Monitoring a Cyberspace Security Econometrics System and other Complex Systems," U.S. Patent Pending (May 12, 2008).

D. L. Beshears, S. G. Batsell, R. K. Abercrombie, M. B. Scudiere, and C. P. White, "System and Method for Identifying, Validating, and Characterizing Moving or Stationary Vehicles and Cargo,"

U.S. Patent 7,305,324 (December 4, 2007).

R. M. Walker, R. K. Abercrombie, and S. G. Batsell, "Method and System for Inspection of Load-Carrying Vehicles," U.S. Patent Pending, (February 8, 2007).

Copyrighted Software:

R. K. Abercrombie, B. G. Schlicher, F. T. Sheldon, M. W. Lantz, and K. R. Hauser, "Cyberspace Security Econometrics System (CSES)," U.S. Copyright TXu 1-901-039, February 6, 2014.

R. K. Abercrombie and F. T. Sheldon, "Automated-In-Motion Evaluation Environment (AIMVEE) User Training and Testing Materials," U.S. Copyright TXu 1-797-273, February 13, 2012.

R. K. Abercrombie, G. D. Richardson, F. T. Sheldon, D. L. Beshears, M. B. Scudiere, D. B. Smith, and C. P. White, "Automated-In-Motion Evaluation Environment (AIMVEE) User Manual," U.S. Copyright TXu 1-696-097, August 12, 2010.

R. K. Abercrombie, G. D. Richardson, M. B. Scudiere, B. G. Schlicher, and G. C. Arnold, "Static Scale Software Conversion Software for Automated-In-Motion," U.S. Copyright TXu 1-703-492, July 28, 2010.

R. K. Abercrombie and L. M. Hively, "Error Reduction in Weigh-In-Motion," U.S. Copyright TXu 1-735-072, October 31, 2008.

R. K. Abercrombie, G. D. Richardson, M. B. Scudiere, B. G. Schlicher, and G. C. Arnold, "Automated-In-Motion Evaluation Environment (AIMVEE)," U.S. Copyright TXu 1-619-362, March 17, 2008.

Recent Publications:

A. Ben Aissa, R.K. Abercrombie, F.T. Sheldon and A. Mili, "Quantifying Availability Using Mean Failure Cost in Cyber-Physical SCADA Environments," *2014 IEEE Symposium on Computational Intelligence in Cyber Security (CICS), IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2014)*, Orlando, FL, December 9-12, 2014.

R. K. Abercrombie and Andrew S. Loeb, "Systems Life Cycle and its Relation with the Triple Helix," in *Measuring Scholarly Impact – Methods and Practice*, Y. Ding, R. Rousseau, and D. Wolfram (Eds.) Book Chapter, Springer, in press.

R. K. Abercrombie and S. Peters, "Centralized Cryptographic Key Management and Critical Risk Assessment - CRADA Final Report For CRADA Number NFE-11-03562," May 28, 2014 ([DOE SciTech Connect](#); [DOI: 10.2172/1132557](#)).

R. K. Abercrombie, "Cryptographic Key Management and Critical Risk Assessment," ORNL/TM-2014/131, April 2014 ([DOE SciTech Connect](#); [DOI: 10.2172/1131520](#)).

R. K. Abercrombie and J. T. McDonald, (Editors), *2014 Proceedings of the Ninth Annual Cyber and Information Security Conference (CISRC-2014)*, ACM International Conference Proceeding Series, Oak Ridge, TN, April 8-10, 2014 ([DOE SciTech Connect](#); [DOI: 10.1145/260287](#)).

A. Ben Aissa, L. B. A. Rabai, R. K. Abercrombie, and A. Mili, "Quantifying Availability in SCADA Environments Using the Cyber Security Metric MFC," *2014 Proceedings of the Ninth Annual Cyber and Information Security Research Conference (CISRC-2014)*, Oak Ridge, TN, April 8-10, 2014 ([DOI: 10.1145/2602087.2602103](#)).

R. K. Abercrombie, B. G. Schlicher, and F. T. Sheldon, "Security Analysis of Selected AMI Failure Scenarios Using Agent Based Game Theoretic Simulation," *Proceedings of 2014 47th Hawaii International Conference on System Sciences (HICSS-47)*, Waikoloa, Big Island, Hawaii, January 6-9, 2014, Computer Society Press, 2014, pp. 2015-2024 ([DOI: 10.1109/HICSS.2014.255](#)).

R. K. Abercrombie, B. G. Schlicher, and F. T. Sheldon, "Analysis of Search Results for the Clarification and Identification of Technology Emergence (AR-CITE)," *Proceedings of 14th International Society of Scientometrics and Informetrics Conference (ISSI 2013)*, ed.: J. Gorraiz, E. Schiebel, C. Gumpenberger, M. Hörlesberger, and H. Moed, Facultas Verlags und Buchhandels AG, Vienna, Austria, July 15-19,

2013, pp. 1854-1856.

B. G. Schlicher, R. K. Abercrombie, and L. M. Hively, "Conceptual Framework to Enable Early Warning of Relevant Phenomena (Emerging Phenomena and Big Data)," *Proceedings of 2013 IEEE International Conference on Intelligence and Security Informatics (ISI)*, Seattle, WA, June 4-7, 2013, pp. 227-229 ([DOI: 10.1109/ISI.2013.6578824](https://doi.org/10.1109/ISI.2013.6578824)).

K. Abercrombie, F. T. Sheldon, K. R. Hauser, M. W. Lantz, and A. Mili, "Failure Impact Analysis of Key Management in AMI Using Cybernomic Situational Assessment (CSA)," *Proceedings of the 8th Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW-2012)*, Oak Ridge, TN, January 8-10, 2013 ([DOI: 10.1145/2459976.2459998](https://doi.org/10.1145/2459976.2459998)).

M. Duren, H. Aldridge, R. K. Abercrombie, and F. T. Sheldon, "Designing and Operating Through Compromise: Architectural Analysis of CKMS for the Advanced Metering Infrastructure," *Proceedings of the 8th Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW-2012)*, Oak Ridge, TN, January 8-10, 2013 ([DOI: 10.1145/2459976.2460031](https://doi.org/10.1145/2459976.2460031)).

R. K. Abercrombie, F. T. Sheldon, K. R. Hauser, M. W. Lantz, and A. Mili, "Risk Assessment Methodology Based on the NISTIR 7628 Guidelines," *Proceedings of 46th Hawaii International Conference on System Sciences (HICSS-46)*, Wailea, Maui, Hawaii, January 7-10, 2013, Computer Society Press, 2012, pp. 1802-1811, ([DOI: 10.1109/HICSS.2013.466](https://doi.org/10.1109/HICSS.2013.466)). Nominated best paper and received Runner-Up Acknowledgment.

A. Ben Aissa, R. K. Abercrombie, F. T. Sheldon, and A. Mili, "Defining and Computing a Value Based Cyber-Security Measure," *Information Systems and E-Business Management*, Volume 10, Issue 4, pp 433-453, Springer London: December 1, 2012, ([DOI: 10.1007/s10257-011-0177-1](https://doi.org/10.1007/s10257-011-0177-1)).

R. K. Abercrombie and F. T. Sheldon, "ORNL CRADA - Status Briefing Update (Oct. 2012) on CEDS Portion of Project - Topic 2 Cryptographic Key Management System (CKMS)," ORNL/LTR-2012/538, Purdue University, West Lafayette, IN, October 4, 2012 (Distributed October 2012).

B. G. Schlicher and R. K. Abercrombie, "Information Security Analysis Using Game Theory and Simulation," *Proceedings of the 2012 International Conference on Security and Management (SAM '12), 2012 World Congress in Computer Science, Computer Engineering, and Applied Computing (WORLDCOMP '12)*, Las Vegas, NV, July 16-19, 2012, pp 540-546.

R. K. Abercrombie, E. M. Ferragut and S. D. Boone, "Hidden Markov Modeling for Weigh-In-Motion Estimation," *Proceedings of the International Conference on Weigh-In-Motion (ICWIM6 and NATMEC 2012)*, Dallas, TX, June 4-7, 2012.

R. K. Abercrombie and B. G. Schlicher, "Application of Scientometric Methods to Identify Emerging Technologies," *Proceedings of Quantitative Methods in Defense and National Security 2012*, George Mason University, Fairfax, VA, April 30 - May 1, 2012.

R. K. Abercrombie and F. T. Sheldon, "ORNL CRADA - Phase I Deliverable Report (March 2012) on CEDS Project - Topic 2 Cryptographic Key Management System (CKMS)," ORNL/LTR-2012/256, March 2012.

R. K. Abercrombie, A. W. Udoeyop, and B. G. Schlicher, "A Study of Scientometric Methods to Identify Emerging Technologies Via Modeling of Milestones," *Journal of Scientometrics*, Volume 91, Number 2, Pages 327-342, May 2012, ([DOI: 10.1077/s11192-011-0614-4](https://doi.org/10.1077/s11192-011-0614-4)).

J. A. Bubacz, H. T. Chmielewski, A. J. Depersio, A. E. Pape, L. M. Hively, R. K. Abercrombie, and S. D. Boone, "Phase Space Dissimilarity Measures for Structural Health Monitoring," ORNL/TM-2011/260, August 2011 (Distributed November 2011).

F. T. Sheldon, R. K. Abercrombie and A. Krings (Eds), *Proceedings of 7th Annual Cyber Security and Information Intelligence Research (CSIIRW'11) Workshop, Energy Infrastructure and Cyber Protection ACM International Conference Proceedings Series*, Association of Computing Machinery (ACM), New York, New York, October 2011. PTS # 36432

R. K. Abercrombie, F. T. Sheldon, H. Aldridge, M. Duren, E. Bertino, A. Kulatunga, and U. S. Navaratne, "Secure Cryptographic Key Management System (CKMS) Considerations for Smart Grid

- Devices,” *Proceedings of 7th Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW-2011)*, *ACM International Conference Proceeding Series*, Oak Ridge, TN October 12-14, 2011, ([DOI: 10.1145/2179298.2179364](https://doi.org/10.1145/2179298.2179364)).
- D. Dasgupta, M. H. Ali, R. K. Abercrombie, B. G. Schlicher, F. T. Sheldon, and M. Carvalho, “Secure VM for Monitoring Industrial Process Controllers,” *Proceedings of 7th Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW-2011)*, *ACM International Conference Proceeding Series*, Oak Ridge, TN October 12-14, 2011, ([DOI: 10.1145/2179298.2179341](https://doi.org/10.1145/2179298.2179341)).
- A. Ben Aissa, R. K. Abercrombie, F. T. Sheldon, and A. Mili, “Defining and Computing a Value Based Cyber-Security Measure,” *Proceedings of 2nd Kuwait Conference on e-Services and e-Systems (KCESS 2011)*, *ACM International Conference Proceeding Series*, Kuwait University, Kuwait, April 5-7, 2011, ([DOI: 10.1145/2107556.2107561](https://doi.org/10.1145/2107556.2107561)).
- F. T. Sheldon, H. Aldridge, M. Duren, L. M. Hively, D. Dasgupta, and R. K. Abercrombie, "Adaptive Bio-Inspired Resilient Cyber-Physical Systems: R&D Prospective," *International Symposium on Resilient Control Systems, Cyber Awareness*, Boise, ID, August 9-11, 2011.
- R. K. Abercrombie and A. W. Udoeyop, “A Study of Scientometric Methods to Identify Emerging Technologies,” *13th International Society of Scientometrics and Informetrics Conference 2011 (ISSI 2011)*, Durban, South Africa, July 4-8, 2011.
- R. K. Abercrombie, E. M. Ferragut, F. T. Sheldon, and M. R. Grimaila, “Addressing the Need for Independence in the CSE Model,” *Proceedings of 2011 IEEE Symposium on Computational Intelligence in Cyber Security (CICS 2011) - Symposium Series on Computational Intelligence (IEEE SSCI 2011)*, Paris, France, April 11-15, 2011.
- A. Ben Aissa, R. K. Abercrombie, F. T. Sheldon, and A. Mili, “Defining and Computing a Value Based Cyber-Security Measure,” *Proceedings of 2nd Kuwait Conference on e-Services and e-Systems (KCESS 2011)*, *ACM International Conference Proceeding Series*, Kuwait University, Kuwait, April 5-7, 2011 ([DOI: 10.1145/2107556.2107561](https://doi.org/10.1145/2107556.2107561)).
- R. K. Abercrombie, "Complex Structure Failure Forewarning System," *2011 Department of Homeland Security (DHS) Science Conference – 5th Annual DHS University Network Summit*, Washington, D.C., March 31, 2011.
- R. K. Abercrombie, F. T. Sheldon, and A. Mili, "Validating Cyber Security Requirements: A Case Study," *IEEE Proceedings of the 44th Annual Hawaii International Conference on System Sciences (HICSS-44)*, Koloa, Kauai, Hawaii, January 4-7, 2011, Computer Society Press, 2011 (10 pages).
- A. Ben Aissa, R. K. Abercrombie, F. T. Sheldon, and A. Mili, "Quantifying Security Threats and Their Impact: Theory and Practice," *Innovations in Systems and Software Engineering*, Volume 6, Number 4, pp. 269-281, Springer London: December 2010 ([DOI 10.1007/s11334-010-0123-2](https://doi.org/10.1007/s11334-010-0123-2)).
- R. K. Abercrombie, F. T. Sheldon, and M. R. Grimaila, "A Systematic Comprehensive Computational Model for Stake Estimation in Mission Assurance," *Proceedings of International Workshop on Mission Assurance: Tools, Techniques, and Methodologies (MATTM 2010)*, *2nd IEEE International Conference on Social Computing (SocialCom 2010) / 2nd IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT 2010)*, Minneapolis, MN, August 20-22, 2010, Computer Society Press, pp. 1153-1158.
- R. K. Abercrombie, "Performance Measure of Monitoring and Improving Weigh-In-Motion (WIM) Devices," *Proceedings of Proceedings of North American Travel Monitoring Exhibition & Conference (NATMEC 2010) - Improving Traffic Data Collection, Analysis, and Use*, Seattle, WA, June 21-24, 2010.
- R. K. Abercrombie, "Identification and Monitoring of Critical Success Factors for Effective e-Commerce, e-Learning, e-Training, and e-Democracy," *Proceedings of 1st International Conference on Electronic Management*, Tripoli, Libya, June 1-3, 2010.
- A. Ben Aissa, A. Mili, R. K. Abercrombie, and F. T. Sheldon, "Modeling Stakeholder/Value Dependency through Mean Failure Cost," *Proceedings of 6th Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW-2010)*, *ACM International Conference Proceeding Series*,

Oak Ridge, TN April 21-23, 2010.

A. Ben Aissa, A. Mili, F. T. Sheldon, and R. K. Abercrombie, "Software Requirements for a System to Compute Mean Failure Cost," *Proceedings of 6th Annual Cyber Security and Information Intelligence Research Workshop (CSIRW-2010)*, *ACM International Conference Proceedings Series*, Oak Ridge, TN April 21-23, 2010.

R. K. Abercrombie, D. H. Buckner, and D. R. Newton, "The Potential and Beneficial Use of Weigh-In-Motion (WIM) Systems Integrated with Radio Frequency Identification (RFID) Systems for Characterizing Disposal of Waste Debris to Optimize the Waste Shipping Process," *Waste Management Conference (WM2010)*, Phoenix, AZ, March 7-11, 2010.

Selected Less Recent Publications:

R. K. Abercrombie, "Mathematical Techniques for Reduction of Errors in Dynamic Weighing," *Proceedings of 6th Brazilian Congress on Highways and Concessions (CBR&C 2009) and 6th International Exhibition of Products for Highways (BRASVIAS 2009)*, Florianópolis, Brazil, September 21-23, 2009.

F. T. Sheldon, R. K. Abercrombie, and A. Mili, "Evaluating Security Controls Based on Key Performance Indicators and Stakeholder Mission," *IEEE Intelligence and Security Informatics 2009 (ISI 2009)*, Keynote presentation, presented by F. T. Sheldon, Dallas, TX, June 11, 2009 ([ISI 2009 Program](#), [Keynote Presentation slides](#), [Keynote Presentation - mirrored copy](#)).

F. T. Sheldon, G. D. Peterson, A. W. Krings, R. K. Abercrombie, and A. Mili (Editors), *Proceedings of 5th Annual Cyber Security and Information Intelligence Research Workshop (CSIRW09) - Theme: Cyber Security and Information Intelligence Challenges and Strategies*, *ACM International Conference Proceeding Series*, Oak Ridge, TN, April 13-15, 2009 ([ACM Digital Library](#)).

A. Ben Aissa, R. K. Abercrombie, F. T. Sheldon, and A. Mili, "Quantifying Security Threats and Their Impact," *Proceedings of 5th Annual Cyber Security and Information Intelligence Research Workshop (CSIRW09) - Theme: Cyber Security and Information Intelligence Challenges and Strategies*, *ACM International Conference Proceeding Series*, Oak Ridge, TN April 13, 2009 ([ACM Digital Library](#), [DOI Link](#)).

R. K. Abercrombie, F. T. Sheldon, and A. Mili, "Managing Complex IT Security Processes with Value Based Measures," *Proceedings of 2009 IEEE Symposium on Computational Intelligence in Cyber Security (CICS '09)*, Nashville, TN, April 1, 2009 ([IEEE Xplore](#), [DOI Link](#)).

F. T. Sheldon, R. K. Abercrombie, and A. Mili, "Methodology for Evaluating Security Controls Based on Key Performance Indicators and Stakeholder Mission," *IEEE Proceedings of the 42nd Annual Hawaii International Conference on System Sciences (HICSS-42)*, (CD-ROM), Waikoloa, Big Island, Hawaii, January 5-8, 2009, Computer Society Press, 2009 (10 pages, [DOI Link](#)).

R. K. Abercrombie, F. T. Sheldon, and A. Mili, "Synopsis of Evaluating Security Controls Based on Key Performance Indicators and Stakeholder Mission Value," *Proceedings of 11th IEEE High Assurance Systems Engineering Symposium (HASE'08)*, Nanjing, China, December 3-5, 2008 ([DOI Link](#)).

R. K. Abercrombie, F. T. Sheldon, and R. M. Walker, "Oak Ridge National Laboratory's Experiences with Multiple Uses of Weigh-In-Motion (WIM) Data", *Proceedings of North American Travel Monitoring Exhibition & Conference (2008 NATMEC)*, Washington, D.C., August 6-8, 2006 ([Abstract](#), [PDF](#)).

L. M. Hively, R. K. Abercrombie, M. B. Scudiere, and F. T. Sheldon, "Error Reduction in Portable, Low-Speed Weigh-In-Motion (WIM)", ORNL/TM-2008/004, July 2008.

R. K. Abercrombie, L. M. Hively, M. B. Scudiere, and F. T. Sheldon, "Sub-0.1 Percent Error in Portable, Low-Speed Weigh-In-Motion ", *Proceedings of the International Conference on Heavy Vehicles (5th International Conference on Weigh-in-Motion (ICWIM5) of Heavy Vehicles and 10th International Conference on Heavy Vehicle Transport Technology (HVTT 10)*, eds. B. Jacob, E. O'Brien, ISTE, Ltd. and John Wiley and Sons, Inc., Paris, France, pp. 447-458, May, 2008.

R. K. Abercrombie, L. M. Hively, M. B. Scudiere, and F. T. Sheldon, "Breakthrough Error Reduction in Portable, Low-Speed Weigh-In-Motion (Sub-0.1 Percent Error)", Poster presented at *International Conference on Heavy Vehicles (5th International Conference on Weigh-in-Motion (ICWIM5) and 10th International Conference on Heavy Vehicle Transport Technology (HVTT 10))*, Paris, France, May 19-22, 2008.

F. T. Sheldon, R. K. Abercrombie, and A. Mili, "Evaluating Security Controls Based on Key Performance Indicators and Stakeholder Mission", in *Proceedings of 4th Annual Workshop on Cyber Security and Information Intelligence Research Workshop - Theme: Developing Strategies to Meet the Cyber Security and Information Intelligence Challenges Ahead*, *ACM International Conference Proceeding Series*, Vol. 288, Oak Ridge, TN, May 14, 2008.

F. T. Sheldon, A. Krings, R. K. Abercrombie, and A. Mili (Editors), "Proceedings of 4th Annual Workshop on Cyber Security and Information Intelligence Research Workshop - Theme: Developing Strategies to Meet the Cyber Security and Information Intelligence Challenges Ahead", *ACM International Conference Proceeding Series*, Vol. 288, Oak Ridge, TN, May 12-14, 2008 ([ACM Digital Library](#)).

J. P. Trien, R. K. Abercrombie, and F. T. Sheldon, "Track: Intrusion Detection/Insider Threat: Cyber Security and Information Intelligence" in *Proceedings of 4th Annual Workshop on Cyber Security and Information Intelligence Research Workshop - Theme: Developing Strategies to Meet the Cyber Security and Information Intelligence Challenges Ahead*, *ACM International Conference Proceeding Series*, Vol. 288, Oak Ridge, TN, May 12, 2008 ([ACM Digital Library](#), [DOI link](#)).

R.M. Walker, R.K. Abercrombie, O. A. Omitaomu, A. R. Ganguly, and F.T. Sheldon, "Multi-Modal Integrated Safety, Security & Environmental Program Strategy", *The National Academies Transportation Research Board (TRB) 87th Annual Meeting*, January 13-17, 2008.

R.M. Walker, D.A. Kopsick, T.A. Warren, R.K. Abercrombie, F.T. Sheldon, D.E. Hill, I.G. Gross, and C.M. Smith, "Tracking and Monitoring of Radioactive Materials in the Commercial Hazardous Materials Supply Chain", *Proceedings of the 15th International Symposium on the Packaging and Transportation of Radioactive Materials, PATRAM 2007*, Miami, Florida, October 21-26, 2007.

R. K. Abercrombie, "ORNL, Delivering 21st Century Science and Technology: Bridging the Gap Between the Warfighter and Science & Technology (S&T)", *II Marine Expeditionary Force (II MEF) Science & Technology (S&T) Conference*, Camp Lejuene, NC, September 11, 2007.

C. Lin, K.M. Kavi, F. T. Sheldon, and R.K. Abercrombie, "A Methodology to Evaluate Agent Oriented Software Engineering Techniques", *Proceedings of the 40th Annual Hawaii International Conference on System Sciences (HICSS-40)*, (CD-ROM) Big Island HI, (Software Agents and Semantic Web Technologies Mini-track [nominated best paper]), January 3-6 2007, Computer Society Press, 2007 (10 pages, ([Abstract](#), [PDF](#))).

R. K. Abercrombie, D. L. Beshears, L. M. Hively, M. B. Scudiere, F. T. Sheldon, J. L. Schmidhammer, J. Vanvactor, "Prototype Weigh-In-Motion Performance", ORNL/TM-2007/039 (ORNL/TM-2005/164: revision update from June 2005), October 2006.

R. K. Abercrombie, F. T. Sheldon, and R. G. Schlicher, "Oak Ridge National Laboratory's (ORNL) Weigh-In-Motion Configuration and Data Management Activities" *North American Travel Monitoring Exhibition & Conference (NATMEC), Improving Traffic Monitoring Data for Transportation Decision-Making, NATMEC 2006 Conference Proceedings*, June 7, 2006, with addendum update of data collected October 3-4, 2006.

J. R. Koch, "Weigh in Motion adds up," *Military News*, January 19, 2006 (http://militarynews.com/wheel/wheel_arc/wheel_01_19_06.htm#news04).

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"Weigh-In-Motion (WIM) Generation II New Equipment Training," *U.S. Army Deployment Process Modernization Office (DPMO) Quarterly Army Division Transportation Officer (DTO) & Mobility Officer (MO) Newsletter* 1 (4), 4, 2006.

A. Brand, "Seabees Use New WIMS System for Weighing Equipment," *Seabee Courier*, Vol. 43, No 8, June 2, 2006.

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R. K. Abercrombie, F. T. Sheldon, R. G. Schlicher and K. M. Daley, "Weigh-In-Motion (WIM) and Measurement Reach Back Capability (WIM-RBC) - The Configuration and Data Management Tool for Validation, Verification, Testing and Certification Activities", *40th Annual International Logistics Conference 2005, Logistics: Product and Process for Capacity*, Orlando, FL, August 16, 2005.

R. K. Abercrombie, "Next Generation Weigh-In-Motion: Enhancing Weighing and Measuring of Military Vehicles/Cargo," *Institute for Defense and Government Advancement (IDGA) 3rd Annual Meeting*, Arlington, VA USA, March 1, 2005.

R. K. Abercrombie, D. L. Beshears, M. B. Scudiere, J. E. Coats, Jr., F. T. Sheldon, C. Brumbaugh, E. Hart, and R. McKay, "Weigh-in-Motion Research and Development Activities at ORNL," *4th International Conference on Weigh-in-Motion (ICWM4)*, Taipei, Taiwan, February 21, 2005.

R. K. Abercrombie, D. L. Beshears, M. B. Scudiere, J. E. Coats, Jr., F. T. Sheldon, C. Brumbaugh, E. Hart, and R. McKay, "Weigh-In-Motion Research and Development Activities at the Oak Ridge National Laboratory," pp.139-49 in *Proceeding of the Fourth International Conference On Weigh-In-Motion (ICWM4)*, Taipei, Taiwan, National Science Council, National Taiwan University Publications (ISBN 986-00-0417-X), 2005.

J. E. Coats, Jr., R. K. Abercrombie, D. L. Beshears, and R. B. Honea, "Weigh-In-Motion Technology for Military Operations: Developing a Portable, Safe, and Accurate System," *TR News—Transportation Research Board of the National Academies* 231, 16-18, March-April 2004.

J. E. Coats, Jr., R. K. Abercrombie, D. L. Beshears, and R. B. Honea, "Weigh-In-Motion Technology for In-Theater Applications," *83rd Annual Meeting of Transportation Research Board*, Washington, DC, January 14, 2004.

S. A. Phillips, and R. K. Abercrombie, "Weigh-In-Motion With Rational Rose," Used for fulfillment of Research Alliance in Math and Science (RAMS) Requirement, Oak Ridge, TN USA, August 8, 2003.

Y/NSP-555 "Advanced HAZMAT Rapid Identification, Sorting, and Tracking (AHRIST) Phase II Functional and Technical Requirements," R. M. Walker, I. G. Harrison, R. I. Crutcher, R. R. Whitus, M. A. Buckner, S. F. Smith, M. R. Moore, P. D. Ewing, T. A. Rose, R. K. Abercrombie, J. D. Porter, and R. E. Billo, May 29, 2001.

Y/NSP-564 "Advanced HAZMAT Rapid Identification, Sorting, and Tracking (AHRIST) Phase II Test Plan," R. M. Walker, I. G. Harrison, R. I. Crutcher, R. R. Whitus, M. A. Buckner, P. D. Ewing, T. A. Rose, and R. K. Abercrombie, J. D. Porter, May 29, 2001.

Y/NSP-475 "Department of Defense Hazardous Materials (HAZMAT) Emergency Response Hotline Assessment," R. K. Abercrombie and R. M. Walker, December 7, 2000.

Y/NSP-198 "Technical Information and Exchange System Feasibility and Evaluation Study," submitted to Department of Energy, Headquarters, Office of Policy, R.K. Abercrombie, August 30, 1999.

SIGNIFICANT EVENT [DOE EESI] Officially Activated U. S. Department of Energy's Policy and International Affairs Office Energy and Environmental Security Initiative (EESI) Home Page as a link to Department of Defense Partnership for Peace (PfP) Information System (PIMS) on the PIMS Website (<http://www.pims.org>, <http://server1.pims.org/Desktop/Organizations/partorgan.html>), R. K. Abercrombie, March 1, 1999.

Y/NSP/WEB Activated U. S. Department of Energy's Policy and International Affairs Office Energy and Environmental Security Initiative (EESI) Website, R.K. Abercrombie, February 3, 1999.

K/DSRD/WEB-3051/R3 Re-hosted Cross-Walk of Oak Ridge Capabilities to PIMS Areas of Interested DOE Technologies Interchange System (TIES), and its reference as a subset to Partnership for Peace (PfP) Information Management System (PIMS) on new WindowsNT Server with DOE-ORO Advanced Information System Technologies Website Update and Oak Site Reservation Search Engine and Search Engine Web Server Statistics, R.K. Abercrombie, M.R. Leek, October 1998.

R. K. Abercrombie, "Computer-Based Instruction, presented at Composite Group VII, Methodologies and Technologies, Working Group 32 - Advanced Analysis, Technologies, and Applications, 63rd Military Operations Research Society Symposium, U.S. Naval Academy, Annapolis, MD, K/DSRD/OP-2004, June 8, 1995.

R. K. Abercrombie, "Maintenance Modernization System (MMS)", presented at Composite Group VII, Methodologies and Technologies, Working Group 32 - Advanced Analysis, Technologies, and Applications, 63rd Military Operations Research Society Symposium, U.S. Naval Academy, Annapolis, MD, , K/DSRD/OP-2003, June 7, 1995.

R. K. Abercrombie, "Army War Reserve - Decision Support System (AWRDSS)," presented at Composite Group VI, Resources and Readiness, Working Group 26 - Logistics, 63rd Military Operations Research Society Symposium, U.S. Naval Academy, Annapolis, MD, K/DSRD/OP-2002, June 7, 1995.

R. K. Abercrombie, "Army War Reserve - Decision Support System (AWRDSS)," presented at Composite Group VI, Resources and Readiness, Working Group 29 - Readiness, 63rd Military Operations Research Society Symposium, U.S. Naval Academy, Annapolis, MD, K/DSRD/OP-2001, June 7, 1995.

R. K. Abercrombie, "Maintenance Modernization System (MMS)," presented at Composite Group VI, Resources and Readiness, Working Group 26 - Logistics, 63rd Military Operations Research Society Symposium, U.S. Naval Academy, Annapolis, MD, K/DSRD/OP-2000, June 7, 1995.

R. K. Abercrombie, "Army War Reserve - Decision Support System (AWRDSS)," presented at Composite Group VII, Methodologies and Technologies, Working Group 30 -Decision Analysis, 63rd Military Operations Research Society Symposium, U.S. Naval Academy, Annapolis, MD, , K/DSRD/OP-1999, June 6, 1995.

R. K. Abercrombie and R. M. Bagby, "An Explanation for the Folding Fibers in Proboscis Retractor Muscles of *Phascolopsis (=Golfingia) gouldi* - II. Structural Evidence from SEM of Teased, Glycerinated Muscles and Light-Microscopy of KOH-Isolated Fibers," *Comparative Biochemistry and Physiology, Part A-Physiology*, vol. 77A, pp. 31-38, 1984.

R. K. Abercrombie, R. M. Bagby, and Y. Matsumoto, "An Explanation for the Folding Fibers in Proboscis Retractor Muscles of *Phascolopsis (=Golfingia) gouldi* - I. Correlation between Length-Tension Data and Structure in Living Muscle," *Comparative Biochemistry and Physiology, Part A-Physiology*, vol. 77A, pp. 23-29, 1984.

R. M. Bagby and R. K. Abercrombie, "Observations on the 3-Dimensional Organization of Myofibrils in Vertebrate Smooth Muscle." In: *The John M. Marshall Symposium in Cell Biology, Motility and Cell Function*. 1st Edition. ed. F. A. Pepe, Academic Press, New York, pp. 427-431, 1979.

R. K. Abercrombie and R. M. Bagby, "Mechanism of Contraction of Folding Fibers in a Non-Striated Muscle," *Federation Proceedings*, vol. 37, pp. 785-785, 1978.

R. K. Abercrombie, Y. Matsumoto, and R. M. Bagby, "Evidence for Folding Fibers in a Non-Striated Muscle," *Biophysical Journal*, vol. 17, pp. A267-A267, 1977.

R. K. Abercrombie and R. M. Bagby, "Contraction of Cells from Proboscis Retractor and Spindle Muscles of *Golfingia-gouldii* (Motion-Picture)," *American Zoologist*, vol. 15, pp. 789-789, 1975.

Invited Talks/Presentations:

R. K. Abercrombie and B. G. Schlicher, "Risk Assessment Methodology - All Hazards Econometrics System (AHES, pronounced Oz)," DOE Microgrid R&D Program Quarterly Meeting, Oak Ridge National Laboratory, Oak Ridge, TN, November 18, 2013..

R. K. Abercrombie and B. G. Schlicher, "Big Data, Social Networks, and Analytics (Big Data Science at ORNL)," University of Memphis Center for Information Assurance Cyber Security Expo, Invited Keynote Speaker, October 19, 2012.

R. K. Abercrombie, "SCADA Security: Workshop/Tutorial on Automation and Control Device/SCADA," Invited Guest Panelist, FedEx Institute of Technology, University of Memphis, Memphis, TN, October 18, 2012.

R. K. Abercrombie, "Infrastructure Health Monitoring - Earning Warning System for Failing Bridges," ORNL Capability Presentation to Global Security Directorate Strategic Advisory Group Meeting, April 18, 2012.

R. K. Abercrombie, "Recent Findings and Impressions with Respect to ORNL Key Roles in DOE Cyber Security For Energy Effort," Seminar on Cyber and Physical Security of Critical Infrastructure, Keynote Speaker, Herff College of Engineering and The Center for Information Assurance, University of Memphis, Memphis, TN October 7, 2011.

R. K. Abercrombie, "Complex Structure Failure Forewarning System," Invited Panelist, Panel: Infrastructure Analysis, 2011 DHS Science Conference - Fifth Annual DHS University Network Summit, Washington, D.C., March 31, 2011.

R.K. Abercrombie and L.M. Hively, "Recent Endeavors in Performance Measure of Monitoring and Improving Weigh-In-Motion (WIM) Devices," Presentation to Aging Infrastructure Systems Center of Excellence, University of Alabama, July 29, 2010.

R. K. Abercrombie, "Identification and Monitoring of Critical Success Factors for Effective e-Commerce, e-Learning, e-Training, and e-Democracy," Keynote Speaker, *1st International Conference on Electronic Management*, Tripoli, Libya, June 1-3, 2010.

R. K. Abercrombie, "Mathematical Techniques for Reduction of Errors in Dynamic Weighing," presented at *Plenary Session, 6th Brazilian Congress on Highways and Concessions (CBR&C 2009) and 6th International Exhibition of Products for Highways (BRASVIAS 2009)*, Florianópolis, Brazil, September 21-23, 2009.

R. K. Abercrombie, Round Table Speaker, *6th Brazilian Congress on Highways and Concessions (CBR&C 2009) and 6th International Exhibition of Products for Highways (BRASVIAS 2009)*, Florianópolis, Brazil, September 21-23, 2009.

F. T. Sheldon, R. K. Abercrombie, and A. Mili, "Evaluating Security Controls Based on Key Performance Indicators and Stakeholder Mission," *IEEE Intelligence and Security Informatics 2009 (ISI 2009)*, Keynote presentation, presented by F. T. Sheldon, Dallas, TX, June 11, 2009 ([ISI 2009 Program](#), [Keynote Presentation slides](#), [Keynote Presentation - mirrored copy](#)).

R. K. Abercrombie, Invited Participant, *IARPA Mile Wide, Mile Depth (M²) Workshop*, Chicago, IL, October 28-29, 2008.

R. K. Abercrombie, Invited Participant, *National Cyber Leap Year Summit*, Arlington, VA, August 17-19, 2009 ([Web Site](#)).

R. K. Abercrombie, "ORNL, Delivering 21st Century Science and Technology: Bridging the Gap Between the Warfighter and Science & Technology (S&T)", *II Marine Expeditionary Force (II MEF) Science & Technology (S&T) Conference*, Camp Lejuene, NC, September 11, 2007.

Keynote Address: Future Logistics for Joint Logistics Warfighting Initiative (JLWI) (Keynote Address), presented to *JLWI Conference*, Tampa, FL, R. K. Abercrombie, January 31, 2000.

Requested Briefing: Transportation/Logistics Crisis Action Support Tools Briefing, requested by Mr. Joe Sredl, Director of Logistics, Operations Support Directorate, Federal Emergency Management

Agency, May 22, 2000.

Keynote Address: “Oak Ridge Complex Automated Identification Technology (AIT) Capabilities” presented to *Navy AIT Steering Group Meeting*, Virginia Beach, VA, R. K. Abercrombie, June 7, 2000.

Invited Brief: *Armed Forces Journal, International* – “Department of Energy Capabilities,” authored by R.K. Abercrombie, presented by D.E. Vinson, Oak Ridge, TN July 18, 2000.

Invited Brief: “Advanced Diagnostics and Condition-Based Maintenance,” *MARFORPAC Predictive Readiness Conference*, Camp Smith, Honolulu, HI, R. K. Abercrombie, D. E. Vinson, August 18, 2000.

Invited Brief: “Advanced Integrated Information Management System,” *MARFORPAC Predictive Readiness Conference*, Camp Smith, Honolulu, HI, R.K. Abercrombie, D.E. Vinson, August 18, 2000.

SIGNIFICANT MTG [ORNL]: “Transformation in Defense Logistics - A Priority Focus for ORNL and LMES,” Briefing for Gary Coxon by Ad Hoc Working Group on Defense Logistics, R. K. Abercrombie, R. Brittain, M. Bronzini, M. Hilliard, T. Reuther, December 3, 1998.

Security clearance

Clearance documentation available through official requests.

Awards received

2013, Best Paper Nomination and Runner-Up Acknowledgment, R. K. Abercrombie, F. T. Sheldon, K. R. Hauser, M. W. Lantz, and A. Mili, “Risk Assessment Methodology Based on the NISTIR 7628 Guidelines,” Proceedings of 46th Hawaii International Conference on System Sciences (HICSS-46), Maui, Hawaii, January 7-10, 2013, Computer Society Press, 2012, pp. 1802-1811, ([DOI: 10.1109/HICSS.2013.466](https://doi.org/10.1109/HICSS.2013.466)).

2011, ORNL Significant Event Award in Recognition and Significant Contribution to the “Design and Implementation of the Virtual Computing Environment for Scientific Experimentation”.

2011, ORNL Certificate in Recognition and Significant Contribution to the “ORNL Response to the April Advance Persistent Threat Cyber Attack”.

2009-2010, 2010-2011, 2012-2013 The University of Memphis Center for Information Assurance Advisory Board Certificate of Appreciation, Academic Years: 2009, 2010, 2011, 2012, and 2013.

2009, UT-Battelle, LLC (ORNL) 2009 Key Contributor Award.

2009, Recognized for Exceptional Mentorship in the Research Alliance in Math and Science 2009 Summer Internship at ORNL, DOE Office of Science.

2008, Southeast Region Federal Laboratory Consortium Technology Transfer Award for Automated In-Motion Vehicle Evaluation Environment (AIMVEE): Honorable Mention, January 2009.

2008, UT-Battelle, LLC (ORNL) Awards Night, Excellence in Technology Transfer of Automated In-Motion Vehicle Evaluation Environment (AIMVEE) and Weigh-In-Motion (WIM).

2006, Elected to the grade of Senior Member, IEEE and IEEE Computer Society in recognition of professional standing by the Officers and Board of Directors of the IEEE.

2005, Recognized for Mentorship in the Research Alliance in Math and Science 2005 Summer Internship at ORNL, DOE Office of Science.

2004, 2005, Cited during performance review with monetary award for outstanding and successful leadership of ORNL Weigh-In-Motion (WIM) Program.

2000, Received a commander’s coin from Rear Admiral Raymond A. Archer, Deputy Commander, Defense Logistics Agency for contributions to the Joint Logistics Warfighting Initiative (JLWI) General Officer Steering Committee (GOSC).

2000, Letter of appreciation from Navy Automated Identification Technology (AIT) Project Office for presenting keynote briefing at Navy AIT Steering Group meeting.

1995, 1993, 1992, Recognized as “Super Manager” in DOE WFO Program.

1993, President's Award for Continuous Improvement and President's Luncheon.

1992, MMES, Inc. Awards Night Operations and Support Team Award.

1991, Supplemental Incentive Compensation Award for Significant Event for Technical Leadership of the U.S. Army’s modernization and automation of overseas in-theater transportation systems. Portion of Citation reads as follows: ... Your contributions and support of the Army have been projected by them to save more than \$85 million in theater operations over the next 6 years.

1986, Supplemental Incentive Compensation Award for Significant Event-Product Certification and Assembly Division Communications System software for the electronic generation, approval, revision, storage and distribution of inspection procedures that included a mixture of text and graphics and the collection, error correction and storage of certification data.

1985, Letter of Commendation for the implementation/specifications plans, and evaluation model for Y-12’s Computer Aided Design/Manufacturing (CAD/CAM) System/Network acquisition.

1984, U.S. Department of Energy Award of Excellence for Significant Contribution to the U.S. Nuclear Weapons Program, for Statistical Quality Control of Part Machining for the Fabrication Division and Product Certification Division.

1978-1979, NIH Post-doctoral Fellowship in Computer Science and Medical Informatics, University of Missouri, Columbia.

1976-1978, NIH Pre-doctoral Research Assistantship, University of Tennessee, Knoxville.

1976, Conducted Independent Research as Guest Pre-doctoral Research Fellow via Alfred P. Sloan Research Fellowship, Emory University, Atlanta, Georgia.

1975-1976, NSF Pre-doctoral Research Assistantship, University of Tennessee, Knoxville.

1975, Guest Pre-doctoral Research Fellow, The University of Washington, Friday Harbor Marine Laboratories, Friday Harbor, Washington.