Contact Information

E-mail: rkrishna@uw.edu
URL: http://www.ee.washington.edu/research/nsl/people/rkrishna

Education

2003–2007   PhD   Electrical Engineering   University of Washington
                  Dissertation Title: On the Privacy of Emerging Distributed Network Applications
                  Advisor: Professor Radha Poovendran
1999–2002   MS   Electrical Engineering   University of Washington
1993–1997   BS   Electrical Engineering   Manipal Institute of Technology

Major research areas

Aviation cyber security and privacy; transportation cyber-physical system (CPS); security and privacy of connected vehicles and intelligent transportation systems; e-enabled aircraft security; security and privacy of aircraft embedded systems and air traffic control systems; UAV and space information systems security; and smart grid security.

Employment History

- 01/13 – 04/14: Associate Technical Fellow, Cyber Security & CPS, The Boeing Company

- 11/07 – 12/12: Advanced Technologist, Networked Systems, Boeing Research & Technology

- 11/07 – present: NSL Co-Director, Network Security Lab, Univ. of Washington

- 09/07 – 11/07: Research Associate, Network Security Lab, Univ. of Washington

- 07/06 – 06/07: Student Intern, Information Assurance, Phantom Works

- 01/05 – 08/07: Research Assistant, Network Security Lab, Univ. of Washington

- 06/03 – 12/04: Instructor, Electrical Engineering, Univ. of Washington

- 09/03 – 06/04: Lead TA for EE, College of Engineering, Univ. of Washington

- 09/00 – 08/03: Teaching Assistant, Electrical Engineering, Univ. of Washington

- 05/99 – 09/99: Network Engineer, Unilever India

- 08/08 – 09/99: Network Engineer Trainee, Manipal Control Data E-Commerce Ltd. India

Honors and Awards

- 2013: **Engineer of the Year Award**, American Society of Engineers of Indian Origin (ASEI). Award presented by General Charles Bolden Jr., current NASA Administrator and former astronaut, at National ASEI Convention in Washington DC.

- 2013: **Corporate Engineering Excellence Award**, American Society of Engineers of Indian Origin (ASEI). Award presented by Boeing executive management at the National ASEI Convention in Washington DC.

- 2013: **Boeing Certificate of Recognition**. For demonstrating "very high technical excellence and leadership in ATM Cyber-Physical Security R&D."

- 2012: **Boeing Associate Technical Fellow**. Selected for engineering and aviation cyber security expertise. Fewer than 1.5% of Boeing employees are selected members of the Technical Fellowship. (http://www.boeing.com/news/frontiers/archive/2009/november/cover.pdf)

- 2012: **Best Paper of Session Award**, Avionics Information Management Session, IEEE/AIAA Digital Avionics Systems Conference.

- 2012: **Pride@Boeing award**. For contributions to developing a combined security and safety management system to FAA.

- 2010: **Best Paper of Session Award**, NextGen Surveillance Session, IEEE/AIAA Digital Avionics Systems Conference.

- 2009: **Pride@Boeing award**. For effort in airplane security contract R & D effort.

- 2003: **Lead Teaching Assistant**, UW EE. Selected by the UW College of Engineering for this first-time position for 2003-2004.

- 2003: **Outstanding Teaching Assistant Award Nomination**, UW EE.

Teaching and Advising Experience

- Invited Guest Lecturer, UW EE 418 on Network Security and Cryptography (Autumn '10-'13)

- Invited Guest Lecturer, UW Professional Masters Program Control Systems Course (Fall '11)

- Instructor for UW EE 418 on Network Security and Cryptography (Autumn '04)

- Instructor for UW EE/CSE 461 on Computer Networks (Summer '04)

- Instructor for UW EE 332 on Devices and Circuits II (Summer '03)

- Lead Teaching Assistant for UW EE, selected by the College of Engineering, University of Washington. Advised & assisted EE teaching assistants by conducting workshops, peer-reviews, & faculty/student feedbacks

- Teaching Assistant for UW EE. Assisted instructors of sophomore to senior undergraduate courses in electrical circuits by conducting review sessions and grading

H-index: 12 (as per Google Scholar, April 2014)

Journal Publications

1. K. Sampigethaya and R. Poovendran, Aviation Cyber-Physical Systems: Foundations for Future Aircraft and Air Transport, *Proceedings of the IEEE*, August 2013. **(IEEE Xplore download count: 550 as of Feb. 2014; Google Scholar citation count: 3 as of April 2014)**

2. R. Poovendran, K. Sampigethaya, S. Gupta, I. Lee, K. V. Prasad, D. Corman, J. Paunicka, "Special issue on Cyber-Physical Systems [Scanning the Issue]," *Proceedings of the IEEE*, vol. 100, no. 1, pp. 612, January 2012. **(Google Scholar citation count: 20 as of April 2014)**

3. K. Sampigethaya, R. Poovendran, S. Shetty, T. Davis, C. Royalty, "Future e-enabled aircraft communications and security: The next twenty years and beyond," to appear, *Proceedings of the IEEE*, Special issue on Aerospace Communications and Networking in the Next Two Decades, vol. 99. no. 11, pp. 2040–2055, December 2011. **(Google Scholar citation count: 16 as of April 2014)**

4. D. Sharp, A. Bell, J. Gold, K. Gibbar, D. Gvillo, V. Knight, K. Murphy, W. Roll, K. Sampigethaya, V. Santhanam, S. Weismuller, "Challenges and Solutions for Embedded and Networked Aerospace Software Systems," *Proceedings of the IEEE,* vol. 98, no. 4, pp. 621–634, April 2010.

5. K. Sampigethaya, R. Poovendran, L. Bushnell, M. Li, R. Robinson, S. Lintelman, "Secure Wireless Collection and Distribution of Commercial Airplane Health Data," *IEEE Aerospace and Electronic Systems Magazine,* vol. 24, no. 7, pp. 14-20, July 2009. **(Google Scholar citation count: 15 as of April 2014)**

6. K. Sampigethaya, R. Poovendran and L. Bushnell, "Secure Operation, Control and Maintenance of Future eEnabled Airplanes," *Proceedings of the IEEE*, Special issue on Aviation Information Systems, vol. 96, no. 12, pp. 1992–2007, Dec. 2008. **(Google Scholar citation count: 16 as of April 2014)**

7. K. Sampigethaya, M. Li, L. Huang and R. Poovendran, "AMOEBA: Robust Location Privacy Scheme for VANET," *IEEE Journal on Selected Areas in Communications*, Special issue on Vehicular Networks, vol. 25, no. 8, pp. 1569–1589, October 2007. **(Google Scholar citation count: 167 as of April 2014)**

8. K. Sampigethaya and R. Poovendran, "A Survey on Mix Networks and their Secure Applications," *Proceedings of the IEEE*, vol. 94, no. 12, pp. 2142 –2181, December 2006. **(Google Scholar citation count: 39 as of April 2014)**

9. K. Sampigethaya and R. Poovendran, "A Framework and Taxonomy for Comparison of Electronic Voting Schemes," *Elsevier Computers & Security*, vol. 25, no. 2, pp. 137–153, March 2006. **(Google Scholar citation count: 61 as of April 2014)**

Book Chapters

1. M. Li, K. Sampigethaya, and R. Poovendran, "Certificate-Based Trust Establishment in e-Enabled Airplane Applications: Challenges and Approaches," in *Trust Modeling and Management in Digital Environments: From Social Concept to System Development*, 2009.

Conference and Workshop Papers

1. K. Sampigethaya, "Securing Airborne Surveillance Applications," Boeing Technical Excellence Conference (BTEC), May 2014.

2. K. Sampigethaya and R. Poovendran,"Transportation CPS: Insights from Aviation on Major Research Challenges and Directions," Invited Position Paper, 2014 NSF Transportation CPS Workshop, Jan. 2014.

3. K. Sampigethaya, R. Poovendran, S. Taylor, "Privacy-Friendly Skies: Models, Metrics, and Solutions for Privacy of Airspace Users," DASC 2013.

4. K. Sampigethaya, R. Poovendran, S. Taylor, "Flight in the NextGen: Challenges and Opportunities," ICNS 2013.

5. K. Sampigethaya and S. Taylor, "Flight Privacy Enhancement," Boeing Technical Excellence Conference (BTEC), July 2013.

6. A. Kumar, D. Lee, T. Mitchell, K. Sampigethaya, et. al., "Enhanced off-board communications," Boeing Technical Excellence Conference (BTEC), July 2013.

7. K. Sampigethaya, R. Poovendran, "Cyber-Physical Integration in Future Aviation Information Systems," IEEE/AIAA Digital Avionics Systems Conference, Oct. 2012. **Best Paper Award in Avionics Information Management session**.

8. K. Sampigethaya, R. Poovendran, S. Taylor, "Privacy of general aviation aircraft in the NextGen," IEEE/AIAA Digital Avionics Systems Conference, Oct. 2012.

9. K. Sampigethaya, R. Poovendran, S. Taylor, "Balancing operator privacy and future airspace surveillance," International Council of the Aeronautical Sciences (ICAS), Sept. 2012.

10. K. Sampigethaya, M. Li, T. Mitchell, "Enhancing the last mile communications at airports," International Council of the Aeronautical Sciences (ICAS), Sept. 2012.

11. K. Sampigethaya, R. Poovendran, "Enhancing ADS-B for UAV Operations," AIAA Infotech@ Aerospace, June 2012.

12. K. Sampigethaya, R. Poovendran, "Cyber-Physical Perspective of Future Aircraft and Airborne Networks," IEEE Aerospace, March 2012.

13. K. Sampigethaya, W. Beck, K. Lane, S. Lintelman, R. Poovendran, "Bridging Aero and Auto CPS: Secure Software and Data Distribution," *NIST/NSF/USCAR Workshop on Developing Dependable and Secure Automotive Cyber-Physical Systems from Components*, March 2011.

14. K. Sampigethaya and R. Poovendran, "Security and Privacy of Future Aircraft Wireless Communications with Off-board Systems," *IEEE COMSNETS Workshop on Wireless Systems: Advanced Research and Development (WISARD)*, January 2011. **(Google Scholar citation count: 6 as of April 2014)**

15. M. Montanari, R. Campbell, K. Sampigethaya, and M. Li, "Security policy framework for eEnabled fleet and airports," *IEEE Aerospace*, March 2011.

16. K. Sampigethaya and R. Poovendran, "Visualization and Assessment of ADS-B Security for Green ATM," *IEEE DASC*, October 2010. **Best Paper Award in NextGen Surveillance session**. **(Google Scholar citation count: 8 as of April 2014)**

17. K. Sampigethaya and R. Poovendran, "Enhancing Location Privacy of Future Aircraft Wireless Communications," *AIAA ATIO*, September 2010.

18. K. Sampigethaya and R. Poovendran "Assessment and Mitigation of Cyber Exploits in Networked Surveillance of Future Aircraft," *IEEE Aerospace*, March 2010. **(Google Scholar citation count: 5 as of April 2014)**

19. K. Sampigethaya and R. Poovendran, "Privacy of Future Air Traffic Management Broadcasts," *IEEE Digital Avionics Systems Conference (DASC)*, October 2009. **(Google Scholar citation count: 10 as of April 2014)**

20. K. Sampigethaya, R. Poovendran, and L. Bushnell, "Securing Future eEnabled Airplane Navigation and Surveillance," *AIAA Infotech@Aerospace*, April 2009. **(Google Scholar citation count: 3 as of April 2014)**

21. B. Alomair, K. Sampigethaya, and R. Poovendran "Towards Trustworthy Cryptographic Protection of Airplane Information Assets," *AIAA Infotech@Aerospace*, April 2009.

22. M. Montanari, M. Li, and K. Sampigethaya, "A Formal Security Model for Discrete-Event Networked Control Systems," *AIAA Infotech@Aerospace*, April 2009.

23. K. Sampigethaya, S. Shetty, T. Davis, M. Li, S. Lintelman, R. Robinson, L. Bushnell, "Networked CPS View of Future Airspace," position paper, *National Workshop for Research on Transportation CPS: Automotive, Aviation and Rail*, November 2008.

24. K. Sampigethaya, S. Lintelman, R. Robinson, M. Li, "Challenges in Aviation CPS Asset Collection and Distribution," position paper, *National Workshop for Research on Transportation CPS: Automotive, Aviation and Rail*, November 2008.

25. K. Sampigethaya, R. Poovendran, and L. Bushnell, "Security of Aircraft Ad hoc Networks in the Next-Generation Air Transportation System," *Proceedings of the AIAA Aviation Technology, Integration and Operations (ATIO) conference*, September 2008. **(Google Scholar citation count: 7 as of April 2014)**

26. K. Sampigethaya, R. Poovendran, L. Bushnell, M. Li, R. Robinson, S. Lintelman, "Security of Wireless Sensor Network Enabled Health Monitoring for Commercial Airplanes," *Proceedings of the 26th Congress of the International Council for Aeronautical Sciences (ICAS)*, September 2008.

27. M. Li, R. Poovendran, R. Falk, A. Kopf, K. Sampigethaya, R. Robinson, and S. Lintelman, "Multi-Domain RFID Access Control Using Asymmetric Key Based Tag-Reader Mutual Authentication," *Proceedings of the 26th Congress of the International Council of the Aeronautical Sciences (ICAS)*, September 2008.

28. B. Alomair, K. Sampigethaya, and R. Poovendran, "Efficient and Provable Forward Secure Signature and Proxy Signature Schemes," *Proceedings of 5th EuroPKI workshop*, June 2008. **(Google Scholar citation count: 16 as of April 2014)**

29. S. Lintelman, R. Robinson, M. Li, K. Sampigethaya, "Formal Methods for Trustworthy Skies: Building Confidence in the Security of Aircraft Assets Distribution," *Proceedings of the 15th International Symposium on Formal Methods (FM 2008)*, pp. 406–410, May 2008.

30. M. Li, C. K. Fung, K. Sampigethaya, R. Robinson, R. Poovendran, R. Falk, F. Kohlmayer, A. Koepf, "Public Key Based Authentication for Secure Integration of Sensor Data and RFID," *Proceedings of the 1st ACM International Workshop on Heterogeneous Sensor and Actor Networks*, pp. 61-66, May 2008.

31. S. Lintelman, K. Sampigethaya, M. Li, R. Poovendran and R. Robinson, "High Assurance Aerospace CPS and Implications for Automotive Industry," position paper, *National Workshop on High Confidence Automotive Cyber-Physical Systems (CPS)*, April 2008. **(Google Scholar citation count: 5 as of April 2014)**

32. K. Sampigethaya, M. Li, R. Poovendran, R. Robinson, L. Bushnell, S. Lintelman, "Secure Wireless Collection and Distribution of Commercial Airplane Health Data," *Proceedings of the AIAA/IEEE Digital Avionics Systems Conference (DASC)*, pp. 4.E.6-1 – 4.E.6-8, October 2007.

33. R. Robinson, M. Li, K. Sampigethaya, R. Poovendran, S. Lintelman, D. von Oheimb, J. Buer, J. Cuellar, "Electronic Distribution of Airplane Software and the Impact of Information Security on Airplane Safety," *Proceedings of the 26th International Conference on Computer Safety, Reliability and Security (Safecomp)*, pp. 28–39, September 2007. **(Google Scholar citation count: 25 as of April 2014)**

34. R. Robinson, K. Sampigethaya, M. Li, S. Lintelman, R. Poovendran, D. von Oheimb, "Secure Network-Enabled Commerical Airplane Operations: IT Support Infrastructure Challenges," *Proceedings of the First CEAS European Air and Space Conference Century Perspectives (CEAS),* September 2007.

35. R. Robinson, M. Li, K. Sampigethaya, R. Poovendran, S. Lintelman, D. von Oheimb, J. Buer, "Impact of Public Key Enabled Applications on the Operation and Maintenance of Commercial Airplanes, " *Proceedings of the AIAA Aviation Technology, Integration and Operations (ATIO) conference*, September 2007. **(Google Scholar citation count: 15 as of April 2014)**

36. R. Robinson, K. Sampigethaya, M. Li, S. Lintelman, R. Poovendran, and D. von Oheimb, "Challenges for IT Infrastructure Supporting Secure Network-Enabled Commercial Airplane Operations," *Proceedings of the AIAA Infotech@Aerospace conference*, May 2007.

37. M. Li, K. Sampigethaya, L. Huang, R. Poovendran, "Swing & Swap : User-Centric Approaches Towards Maximizing Location Privacy," *Proceedings of the 2006 ACM Workshop on Privacy in the Electronic Society (WPES)*, pp. 19–28, Oct. 2006. **(Google Scholar citation count: 101 as of April 2014)**

38. S. Lintelman, R. Robinson, M. Li, D. von Oheimb, R. Poovendran and K. Sampigethaya, "Security Assurance for IT Infrastructure Supporting Airplane Production, Maintenance and Operation," position paper, *National Workshop on Aviation Software Systems: Design for Certifiably Dependable Systems*, October 2006. **(Google Scholar citation count: 6 as of April 2014)**

39. K. Sampigethaya, L. Huang, M. Li, R. Poovendran, K. Matsuura, and K. Sezaki, "CARA-VAN: Providing Location Privacy for VANET," *Proceedings of the Embedded Security in Cars (ESCAR)*, November 2005. **(Google Scholar citation count: 242 as of April 2014)**

Patents
4 US patent, 15 USPTO patent applications (2 published and 13 filed and awaiting publication), and 27 invention disclosures. Following is a list of the issued/published USPTO patents.

1. K. Sampigethaya, Airborne Wireless Device Security, **to be issued, April-May 2014.**

2. K. Sampigethaya, M. Li, T. Mitchell, Airport Security System, **US patent app.# 0210,387, to be issued, April-May 2014.**

3. K. Sampigethaya, R. Poovendran, Simulation tool for air traffic communications security, **to be issued, April-May 2014.**

4. K. Sampigethaya, R. Poovendran, Method for protecting location privacy of air traffic communications, **US patent # 8,248,294; Issued 21 Aug. 2012.**

5. K. Sampigethaya, Methods and systems for cyber-physical security modeling, simulation, and architecture for the smart grid, US patent app. # 0198,847, 2012.

6. K. Sampigethaya, R. Poovendran, L. Bushnell, Method for validating aircraft traffic control data, US patent app. # 0057,830, 2011.

Technical Reports and Other Publications

1. K. Sampigethaya, S. Taylor, "Flight Privacy Risks in the NextGen," Boeing Technical Report to be submitted to the NBAA and FAA, 2014.

2. K. Sampigethaya, "Secure Flight in Cyberspace," Boeing Technical Report, 2013.

3. K. Sampigethaya, et. al., "CNS Cyber-Physical Security," Boeing Technical Report, 2013.

4. K. Sampigethaya, M. Bowler, R. Ghanadan, "Cyber Security Standards and Cyber Risk Insurance," NCOIC Cybersecurity IPT, 2012.

5. K. Sampigethaya, K. Montry, "Cyber Security of a Net-Centric Aviation Ecosystem," NCOIC Aviation IPT, 2012.

6. K. Sampigethaya, et. al., "Recommendations for an Information Security Management System for FAA ATC Systems in the NAS and Comparison of ISMS with the SMS," NCOIC whitepaper to FAA, 2012.

7. C. Royalty, K. Sampigethaya, "Terminology "cyber" vs "information" V1.0," EUROCAE WG72 / RTCA SC-216 Working Paper 40, April 2010.

8. K. Sampigethaya, "Secure Electronic Storage and Distribution of Airplane Loadable Software Parts and Data," UW EE Kaleidoscope (EEK), 2007.

9. K. Sampigethaya, "AMOEBA: How Group Navigation Helps Enhance Location Privacy of Users in VANET," UW EE Kaleidoscope (EEK), 2007.

10. R. Robinson, D. von Oheimb, M. Li, K. Sampigethaya, and R. Poovendran, "Security Specification for Distribution and Storage of Airplane-Loadable Software and Airplane-Generated Data," Common Criteria Protection Profile draft, 2007.

11. R. Robinson, M. Li, S. Lintelman, K. Sampigethaya, R. Poovendran, M. Otto, and J. Busser, "Airline PKI Requirements for eEnabled Airplane Applications," Boeing internal report, 2007.

12. K. Sampigethaya, M. Li, R. Poovendran, C. Bernstein, "Centralized Key Management and Distribution for Dynamic Multicast Groups: Scalability Issues," IETF/Internet Draft, 2002.

Keynote, Panel and Paper Presentations

1. **Invited Keynote Talk,** AFRL Workshop on Cyber-Physical System Security for SCADA, Transportation, and Military Systems, HANSCOM AFB, 13 November 2013, "Aerospace Cyber-Physical Systems: Security."

2. Technical Presentation, Boeing Technical Excellence Conference (BTEC), July 2013, "Flight Privacy Enhancement."

3. **Invited Keynote Talk**, Net-Centric Operations Industrial Consortium Cyber Security External Workshop, Washington, DC, 31 July - 1 Aug. 2013,"Aviation Cyber Security."

4. **Invited Plenary Talk**, 2013 CMOS Emerging Technologies Research, Whistler, BC, 17-19 July 2013,"Aviation Cyber-Physical Systems."

5. **Invited Keynote Talk**, Net-Centric Operations Industrial Consortium Cyber Security Discovery Workshop, Washington, DC, 11-12 April 2013,"Aviation Cyber Security: Overview of Standards and Developments."

6. **Invited Talk**, Office of Chief Scientist, AFRL Global Horizons Information Directorate Summit, Rome, NY, March 2013, "Securing Aviation Cyber-Physical Interactions in Hostile Environments." Audience included Dr. Mark Maybury, Chief Scientist of US Air Force.

7. **Invited Keynote Talk**, NSF Workshop on Cloud Computing for Cyber-Physical Systems, Arlington, VA, March 2013,"Aerospace Perspectives on Potential Roles of Cloud Computing in Aerospace CPS."

8. **Invited Talk**, Office of Chief Scientist, AFRL Global Horizons Air Domain and Transportation/Logistics Teams Summit, Dayton, OH, Feb. 2013, "Securing UAV Cyber-Physical Interactions in Hostile Environments." Audience included Dr. Mark Maybury, Chief Scientist of US Air Force.

9. **Invited Keynote**, Joint-industry ADS-B Implementation Working Group (JAIWG) and FAA meeting, Washington DC, Jan. 2013 "ADS-B Privacy."

10. **Best Paper Presentation** at 2012 IEEE/AIAA Digital Avionics Systems Conference, "Cyber-Physical Integration of Future Aviation Information Systems."

11. **Invited Keynote**, General Aviation Manufacturers Association (GAMA) Flight Operations Policy Meeting, April 25-26, "ADS-B Security and Privacy."

12. **Invited Keynote**, 2010 International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), Brisbane, Australia, "Cyber-physical systems security: Making skies trustworthy, clean and enjoyable."

13. **Invited Keynote**, 2010 Workshop on Trustworthy and Secure Sensor Networking, Brisbane, Australia, "Aviation cyber-physical systems security."

14. **Invited Keynote**, 2010 Computer-Aided Network Design (CANDE) workshop, "Cyber-physical systems security."

15. Invited Keynote, Low Carbon Process for Aerospace and Defense session, 2011 Low Carbon Earth Summit, Dalian China. Unable to attend.

16. Invited Keynote, 2011 General Aviation Asia Conference, Shanghai, China. Unable to attend.

17. **Best Paper Presentation** at 2010 IEEE/AIAA Digital Avionics Systems Conference, "Visualization and Assessment of ADS-B Security for Green ATM."

18. Presentation at 2010 AIAA Aviation Technology, Integration, and Operations conference, "Enhancing Location Privacy of Future Aircraft Wireless Communications."

19. Presentation at 2010 IEEE Aerospace Conference, "Assessment and Mitigation of Cyber Exploits in Future Networked Surveillance of Aircraft."

20. Presentation at 2009 IEEE/AIAA Digital Avionics Systems Conference, "Privacy of Future Air Traffic Management Broadcasts."

21. Presentation at 2009 AIAA Infotech@Aerospace, "Securing Future eEnabled Airplane Navigation and Surveillance."

22. Presentation at 2008 AIAA Aviation Technology, Integration, and Operations conference, "Security of Aircraft Ad hoc Networks in the Next-Generation Air Transportation System."

23. Presentation at 2008 26th Congress of the International Council for Aeronautical Sciences, "Security of Wireless Sensor Network Enabled Health Monitoring for Commercial Airplanes."

Professional Services

- Co-Lead Organizer, SAE Transportation Cyber Security Symposium, 2015

- Technical Area Chair, Aviation Cyber Security, SAE AeroTech, 2015

- TPC Member, Enhanced Surveillance of Aircraft and Vehicles (ESAV), 2014

- Technical Session Chair, Aviation Cyber Security, IEEE/AIAA DASC, 2014

- Technical Area Chair, Cyber Security, SAE Aero Systems and Technology Conference, 2014

- General Co-Chair, IEEE D-SPAN, 2014

- Technical Session Chair, Safe and Secure Air Transportation System, ICNS, 2014

- Technical PC member, IEEE ISSNIP Symposium on Security, Privacy and Trust for CPS, 2014

- Technical Session Chair, Aviation Information Systems & Cyber Security, IEEE Aerospace, 2014

- Guest Co-Editor, Elsevier Pervasive and Mobile Computing journal special issue, 2014

- Lead Organizer, 2013 IEEE/SAE Transportation Cyber Security Symposium, Montreal

- Technical Session Chair, Aviation Cyber Security, 2013 IEEE/AIAA DASC

- Technical Session Chair, Aviation Cyber Security, 2013 AIAA Aviation

- Technical Session Chair, Safe and Secure Air Transportation System, 2013 ICNS

- General Co-Chair, 2013 IEEE D-SPAN

- Technical Area Chair, Aviation Cyber-Physical Security, 2013 SAE AeroTech

- Panelist, Potential Roles for Cloud Computing in CPS, NSF Workshop on Cloud Computing for CPS, March 14-15, 2013

- Technical Area Chair, Systems Integrity, Verification, and Validation, 2013 AIAA Infotech

- Technical Session Chair, Trustworthy Aviation Information Systems, 2013 IEEE Aerospace

- Panel Moderator, AOC/D-SPAN PANEL: Privacy of Future Computation and Communication Platforms, IEEE WoWMoM, June 2012

- General Co-Chair, 2012 IEEE International Workshop on Data Security and Privacy in Wireless Networks (D-SPAN)

- Technical Session Chair, Safe and Secure Air Transportation System, 2012 Integrated Communications, Navigation, and Surveillance (ICNS)

- Technical Area Chair, Cyber Security, 2012 SAE Aerospace Electronics and Avionics Systems (AEAS) conference

- Technical Session Chair, Aviation Cyber Security, 2012 IEEE/AIAA Digital Avionics Systems Conference (DASC)

- Technical Session Chair, Systems Integrity, Verification, and Validation, 2012 AIAA Infotech@ Aerospace

- Technical Session Co-Chair, Trustworthy Aviation Information Systems, 2012 IEEE Aerospace

- Associate Editor, PROCEEDINGS OF THE IEEE, Special issue on Cyber-Physical Systems, January 2012

- Technical Session Chair, 2011 IEEE/AIAA Digital Avionics Systems Conference (DASC)

- Technical Area Co-Chair, Systems Integrity & Trustworthiness, 2011 AIAA Infotech@Aerospace

- Technical Area Chair, Aviation Cyber-Physical Security, 2011 SAE AeroTech Congress & Exhibition

- Technical Session Chair, Trustworthy Aviation Information Systems, 2011 IEEE Aerospace

- Committee Member, SAE Air & Space Group

- Founding Chair, SAE Aviation Cyber Security Technical Committee

- Organizing Committee Member, 2010 SAE Future ATM Technology Symposium

- Technical Area Co-chair, Trustworthy Aviation Information Systems, 2010 American Institute for Aeronautics and Astronautics (AIAA) Infotech@Aerospace

- Technical Area Chair, Aviation Cyber-Physical Security, 2009 Society for Automotive Engineers (SAE) AeroTech Congress & Exhibition

- Session Chair, Trustworthy Aviation Information Systems, 2009 American Institute for Aeronautics and Astronautics (AIAA) Infotech@Aerospace

- Co-organizer, 2009 US Army Research Office Workshop on Cyber-Physical Systems Security. One of three principal investigators for organization and book production

- Program Committee Member, 2008 NSF/NITRD National Workshop for Research on Transportation Cyber-Physical Systems: Automotive, Aviation and Rail

- Program Committee Member, 2008 ACM Conference on Wireless Security (WiSec)

- Program Committee Member, 2007 Future Generation Communication & Networking conference

- Student Volunteer, Secure Localization & Time Synchronization for Wireless Sensor & Ad Hoc Networks. Assisted the editors with producing this book that appeared in Advances in Information Security series, Vol. 30, Springer, 2007, ISBN 978-0-387-32721-1

- Publications Chair, 2006 ACM workshop on Wireless Security (WiSe)

- Student Volunteer, 2006 IEEE International Symposium on Information Theory (ISIT). Helped advisor organize conference in Seattle

- Student Organizer, 2005 US Army Research Office Workshop on Localization in Wireless Sensor Networks. Led student volunteers, maintained website, and assisted staff with logistics

- Student Organizer, 2004 US Army Research Office Workshop on Information Assurance in Wireless Networks. Led student volunteers, maintained website, and assisted staff with logistics

- Committee Member, 2004 UW EE Outstanding Teaching Awards. Evaluating nominees for the departmental best teaching award and best teaching assistant award

- Committee Member, 2003–2004, UW EE Department Chair Search. Tasks included: identifying candidates, participating in committee meetings, interviewing applicants, and seeking student/faculty feedback on applicants and departmental future directions

- Reviewer for several IEEE and Elsevier journals, Cambridge University Press Book Chapters.