

PHILIP KWAME DANSO ASARE

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EDUCATION

PhD	Computer Engineering <i>Dissertation: A Framework for Reasoning about Patient Safety of Emerging Computer-Based Medical Technologies</i> <i>Advisors: John Lach, John A. Stankovic, Chair: Joanne Bechta Dugan</i> <i>Members: Stephen Patek, Gabriel Robins</i>	University of Virginia	2015
MSE, BSE Certificate	Electrical Engineering College and University Teaching	University of Pennsylvania University of Pennsylvania	2011 2011

ACADEMIC APPOINTMENTS

Bucknell University

Assistant Professor, Department of Electrical and Computer Engineering	Aug 2015 – present
Swanson Fellow in the Sciences and Engineering	
Multicultural Student Services Faculty Fellow	Aug – Dec 2015
<i>Faculty Consultant</i> , Small Business Development Center	Oct 2015 – present

RESEARCH AND PROJECT EXPERIENCE

Bucknell University

<i>Principal Investigator</i> , “Enabling Closed-Loop Control of Infusion in the Operating Room” project (funded by Bucknell-Geisinger Research Initiative)	Jan – present
<i>Consultant</i> , “NSF Nanosystems Engineering Research Center for Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST): Making Wearable Health Platforms and Technologies a Reality: Four Workshop Proposals that Enhance and Broaden ASSIST’s Vision and Mission: Workshop A: Prototype to patient treatment—Promoting dialogue on risk, regulation, safety, security, and acceptability for wearable medical devices” http://www.assistworkshops.com/prototype-to-patient-treatment/	2015 – present
<i>Faculty Mentor</i> , Presidential Fellowship Program	Aug 2015 – present

University of Virginia

<i>Graduate Research Assistant</i> , Computer Engineering Program Advisors: Prof. John Lach, Prof. John A. Stankovic	Fall 2012 - May 2015
<ul style="list-style-type: none">Developed a framework for reasoning about safety implications of body sensor networks (from the perspective of both designers and regulators) based on model-based, systems theoretic, and cyber-physical systems techniques.Created an open, extensible, and intuitive framework for multi-domain simulations of body sensor networks which leverages 3D animation technologies: http://wirelesshealth.virginia.edu/content/bodysim. Leading a team of undergraduate and graduate students on continued development.Serving as <i>Student PI</i> on IRB-approved study (Project #2013-0394-00) to develop accurate simulation model of body area wireless channel dynamics at 2.4GHz.Identified and corrected (using formal methods) design errors in a custom SD-card based inertial sensor node used in clinical trial data collection.Contributed to development of wearable and home monitoring systems used in clinical trials.	

Scholar-In-Residence, Division of Electrical and Software Engineering, Office of Science and Engineering Laboratories, Center for Device and Radiological Health, U.S. Food and Drug Administration (FDA) Oct 2012 – Sept 2013
(at FDA Fall 2012)
Supervisors: Dr. Yi Zhang, Paul L. Jones

- Developed a systems-theoretic framework for defining safety of body sensor networks in a manner that is consistent Systems Safety principles.
- Developed a generic body sensor network safety model and identified five higher-level preliminary hazards.

Charles L. Brown Fellow, Department of Electrical and Computer Engineering Fall 2011 – Summer 2012
Developed preliminary ideas on model-based design for body sensor networks.

Consulting

TypeZero Technologies, LLC

Fall 2013 – Aug 2015

Advising on approaches to safety assessment and regulatory issues for technologies in automated systems for diabetes management

Department of Perioperative Medicine, National Institutes of Health (NIH) Fall 2012 – Aug 2015
Advising on the system architecture and development of an interoperable connected medical system for operating rooms.

Huntington Medical Research Institute (HMRI) Mar 2014 – Aug 2015
Advising on how to approach safety assessment and regulatory issues for an emerging technology (cannot disclose specific technology due to non-disclosure agreement).

University of Pennsylvania

Affiliate Graduate Research Assistant, Smart Alarms Group, PRECISE Center, Sept 2010– Aug 2011
Advisor: Prof. Insup Lee

- Created and led development of a low-cost platform with software based on the IEEE-11073 protocol to serve as an interface between medical devices and other entities interested in connecting to them over a network that has evolved into the Open Health Connector (OHC) project: <http://rtg.cis.upenn.edu/ohc/>.
- Developed related Android library that was finalist in Embedded Systems Week 2011 Android Competition.

Masters Thesis Research, Department of Electrical and Systems Engineering, Sept 2010 – May 2011
Advisor: Prof. Alejandro Ribeiro

Developed a network simulator in Java tailored towards network optimization algorithms in order to enable exploration of performance of algorithms for optimizing interference-limited wireless networks.

Graduate Independent Study, Department of Electrical and System Engineering, Jan 2010 – Aug 2010
Advisor: Prof. Insup Lee

Investigated the requirements and implementation issues involved in developing a wireless plug-and-play interface between medical devices and a gateway device on a patient for vital sign monitoring.

Designed a MEMS-sensor-based hand shape and hand motion capture system and developed a method for representing captured hand shapes for a gesture-based (sign language) input device for computers

Senior Design Project, Department of Electrical and Systems Engineering
Advisor: Prof. Daniel D. Lee

Sept 2009 – Apr 2010

Developed and prototyped an automated magnetic-stripe-card-authentication-based library laptop workstation with electromechanical locks. The system could be monitored over the network by library administrators.

(URL:<http://www.eese.upenn.edu/seniordesign/0910/abstracts0910.html#14>)

Independent Research, Department of Electrical and Systems Engineering,
Title: A composite input device for human-computer interactions

Summers 2008 – 2009

Designed a MEMS-sensor-based hand shape and hand motion capture system and developed a method for representing captured hand shapes for a gesture-based (sign language) input device for computers.

RESEARCH AND PROJECT RELATED ACTIVITIES

Peer-Reviewed Publications

Journals and Magazines

- J1. Jiaqi Gong, **Philip Asare**, John Lach, Yanjun Qi, “Linear Dynamical Model for Actions Clustering from Inertial Body Sensors with Considerations of Human Factors” *IEEE Transactions on Affective Computing: Special Issue on Best of BodyNets 2014* [Invited Paper] (accepted for publication).
- J2. **Asare, P.**, "A Sign of the Times: A Composite Input Device for Human-Computer Interactions," *IEEE Potentials*, Vol.29, No.2, pp.9-14, March-April 2010.

Conference Proceedings¹

- C1. Jiaqi Gong, **Philip Asare**, John Lach, Yanjun Qi, “Piecewise Linear Dynamical Model for Actions Clustering from Inertial Body Sensors with Considerations of Human Factors” *9th ICST International Conference on Body Area Networks (BodyNets)*, October 2014, London, UK. [Best Paper Award]
- C2. Robert F. Dickerson, Enamul Hoque, **Philip Asare**, Shahriar Nirjon, John A. Stankovic, “RESONATE: Reverberation Environment Simulation for Improved Classification of Speech Models” *13th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)* April, 2014, Berlin, Germany.
- C3. **Philip Asare**, John Lach, John A. Stankovic, Yi Zhang, Paul L. Jones, Sandy Weininger, “Towards a Framework for Safety Analysis of Body Sensor Networks” *8th ICST International Conference on Body Area Networks (BodyNets)*, October 2013, Boston, MA. [Best Student Paper Award]
- C4. **Philip Asare**, Robert F. Dickerson, Xianyue Wu, John Lach, John A. Stankovic, “BodySim: A Multi-Domain Modeling and Simulation Framework for Body Sensor Networks Research and Design” *8th ICST International Conference on Body Area Networks (BodyNets)*, October 2013, Boston, MA.
- C5. Shahriar Nirjon, Robert F. Dickerson, **Philip Asare**, Qiang Li, Dezhi Hong, John A. Stankovic, Pan Hu, Guobin Shen, Xiaofan Jiang, “Auditeur: A Mobile-Cloud Service Platform for Acoustic Event Detection on Smartphones” *11th ACM International Conference on Mobile Systems, Applications and Services (MobiSys)* June 2013, Taipei, Taiwan.
- C6. **Philip Asare**, John Lach, John A. Stankovic, “FSTPA-I: A Formal Approach to Hazard Identification via System Theoretic Process Analysis” *4th ACM/IEEE International Conference on Cyber-Physical Systems (ICCP)* April 2013, Philadelphia, PA.
- C7. Shahriar Nirjon, Robert Dickerson, Qiang Li, **Philip Asare**, John A. Stankovic, Dezhi Hong, Ben Zhang, Guobin Shen, Xiaofan Jiang, and Feng Zhao, "MusicalHeart: A Hearty Way of Listening to Music", *10th ACM Conference on Embedded Networked Sensor Systems (SenSys)*, November, 2012, Toronto, ON, Canada.
- C8. Italo Armenti, **Philip Asare**, Juliana Su, John Lach, “A Methodology for Developing Quality of Information Metrics for Body Sensor Design,” *3rd ACM Wireless Health Conference*, October, 2012, La Jolla, CA.

¹ **Note:** work in this field tends to be disseminated more at peer-reviewed conference venues

- C9. **Philip Asare**, Danyang Cong, Santosh Vattam, Baek-Gyu Kim, Shan Lin, Oleg Sokolsky, Margaret Mullen-Fortino, Insup Lee, "The Medical Device Dongle: An Open-Source Standards-Based Platform for Interoperable Medical Device Connectivity," *2nd ACM SIGHIT International Health Informatics Symposium (IHI)*. January, 2012, Miami, FL.

Abstracts (Demonstrations, Posters, Others)

- A1. **Philip Asare**, "Addressing Safety and Efficacy of Body Area Networks" *2014 National Workshop on Research Frontiers in Medical Cyber-Physical Systems*, Feb, 2014 Arlington, VA. [**Selected White Paper Submission**]
- A2. **Philip Asare**, "Enabling Model-Driven Patient Safety Analysis of Medical Body Sensor Networks" PhD Forum, *4th ACM Wireless Health Conference*, October, 2013, Baltimore, MD.
- A3. **Philip Asare**, Robert F. Dickerson, Xianyue Wu, John Lach, John A. Stankovic, "Demo Abstract: BodySim: A Multi-Domain Modeling and Simulation Framework for Body Sensor Networks Research and Design" *11th ACM Conference on Embedded Networked Sensor Systems (SenSys)*, November, 2013, Rome, Italy.
- A4. **Philip Asare**, John Lach, John A. Stankovic. "WiP Abstract: Enabling Holistic Design of Body Sensor Networks". *3rd ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)* (Work-in-Progress Session), April 2012, Beijing, China.
- A5. **Philip Asare**, Danyang Cong, Santosh G. Vattam, BaekGyu Kim, Oleg Sokolsky, Insup Lee, Shan Lin, and Margaret Mullen-Fortino, "Demo of the Medical Device Dongle: An Open-Source Standards-Based Platform for Interoperable Medical Device Connectivity," *2nd ACM Wireless Health Conference*, October, 2011, La Jolla, CA.
- A6. Andrew King, Alex Roederer, **Philip Asare**, Sanjian Chen, Margaret Mullen-Fortino, Soojin Park, Nicholas Stevens, Oleg Sokolsky, Insup Lee, "Demo of the Generic Smart Alarm: A Framework for the Design, Analysis, and Implementation of Smart Alarms and Other Clinical Decision Support Systems," *1st ACM Wireless Health Conference*, October, 2010, La Jolla, CA.

Non-Peer-Reviewed Publications

- O1. **Philip Asare**, John Lach, John A. Stankovic, "Developing Faithful Models of Body Sensor Networks". Presented at the *10th Biennial Ptolemy Miniconference*, Berkeley, CA
- O2. **Philip Asare**, "Enabling Model-Driven Patient Safety Analysis of Medical Body Sensor Networks" *Google Scholars Retreat*, July 2013 New York, NY
- O3. **Philip Asare**, David Broman, Edward A. Lee, Martin Torngren, S. Shyam Sunder [**alphabetical order**] "Cyber-Physical Systems: A Research Taxonomy" [Online Concept Map]: <http://cyberphysicalsystems.org/>

Work Under Review

- R1. **Philip Asare**, Adit Acharya, Yuxuan Huang, Dikendra Karki, Win Kyaw, Caitlin Mahoney, S. Mark Poler, Jean R. La Valley, Rick Tevis "Demo of Platform for Enabling Research and Development of Closed-Loop Control of Infusion in the Operating Room" *IEEE Wireless Health Conference*, Bethesda, MD
- R2. **Philip Asare**, Mahmood Chowdhury, Taimoore Rajah, S. Mark Poler, Mohammed Shah, Peter Guion, Jeffrey Martin, Kevin Driscoll, Qianhong Wu, Andrew Mannes, and C. Nataraj, "A System for Semi-Automated Management of Blood Loss during Surgery: Preliminary Results" *IEEE-NIH 2016 Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies*, Cancun, Mexico.

Intellectual Property

RESONATE, A Distributed Matched Condition Speech Monitoring System. Robert F. Dickerson (30%), John A. Stankovic (30%), Enamul Hoque (20%), Philip Asare (10%), Shahriar Nirjon (10%). [**Invention Disclosure**]

Invited Talks

“Implications of Mobile Health” Science Straight Up, an OpenGrounds Initiative, University of Virginia	Feb 26, 2015
“Patient Safety of Emerging Medical Technologies” Villanova University	Feb 6, 2015
“Safety of Mobile Health Monitoring Systems: Some Things to Think About” Huntington Medical Research Institute (HMRI)	Oct 24, 2014
“My Adventures in Model-Based Systems Engineering: Research and Teaching” National Aeronautics and Space Administration (NASA) Langley Research Center	Mar 21, 2014
“Body Sensor Networks: Challenges, Opportunities, and Current Efforts” School of Electronic, Electrical and Computer Engineering Seminar, University of Birmingham, Birmingham, UK	Sept 19, 2013
“Enabling Patient Safety Analysis of Wearable Medical Body Sensor Networks” Smart Alarms Group, Penn Research in Embedded Computing and Integrated Systems Engineering Center (PRECISE), University of Pennsylvania	Sept 6, 2013
Department of Computer and Information Sciences, Temple University	Sept 6, 2013
Center for Diabetes Technology, University of Virginia	June 20, 2013

Grants and Project Participation

Bucknell-Geisinger Research Initiative (PIs: Philip Asare, Bucknell, Mark Poler, Geisinger) “Enabling Closed-Loop Control of Infusion in the Operating Room” \$49,737 Total, \$36,580 to Bucknell [Principal Investigator]	2016
National Science Foundation (PI: Veena Misra, NCSU, co-PIs: Rider Foley, UVA, Jason Delbourne, NCSU), “NSF Nanosystems Engineering Research Center for Advanced Self- Powered Systems of Integrated Sensors and Technologies (ASSIST): Making Wearable Health Platforms and Technologies a Reality: Four Workshop Proposals that Enhance and Broaden ASSIST’s Vision and Mission: Workshop A: Prototype to patient treatment—Promoting dialogue on risk, regulation, safety, security, and acceptability for wearable medical devices” \$251,203 Total, \$10,550 to Bucknell (Supplement to Award No. 1160483) [Consultant]	2015-2017
National Science Foundation (PI: John Lach, UVA), “NSF-FDA Scholar-in-Residence: Safety Analysis of Body Sensor Networks,” \$35,000 (Award No. 1240454) [Student Co-Author, Fellowship Recipient]	2012-2013

Workshop Participation

ASEE National Effective Teaching Workshop	
Project Catalyst: How to Engineer Engineering Education	July 22-24, 2015
ASU Center for Science Policy and Outcomes Science Outside the Lab [selected participant]	June 2-13, 2014
National Workshop on Research Frontiers in Medical Cyber-Physical Systems [invited]	Feb 6-7, 2014
National Cancer Institute, Developing the Repository for Algorithm Development in Ambulatory Monitoring Research (RADAR) as a Research Resource	Nov 1, 2013
FDA/AAMI Summit on Healthcare Technologies in Non-Clinical Settings	Oct 9-10, 2013
FDA/AAMI Interoperability Summit	Oct 2-3, 2012

Service

<i>Organizer</i> , Patient-to-Prototype Workshop, part of Wireless Health Conference, sponsored by the NSF Nanosystems Engineering Research Center for Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST) http://www.assistworkshops.com/prototype-to-patient-treatment/	Oct 25 th , 2016
<i>Proposal Review Panelist</i> , National Science Foundation	(4 panels, service dates withheld)
<i>External Reviewer</i> , IEEE Transactions on Dependable and Secure Computing	2016
<i>External Reviewer</i> , IEEE Internet of Things Journal	2014, 2015
<i>External Reviewer</i> , IEEE Sensor Journal	2014
<i>External Reviewer</i> , Computer Methods and Programs in Biomedicine	2014
<i>External Reviewer</i> , Journal of Medical and Biological Engineering (JBME)	2013
<i>Volunteer</i> , ACM Conference on Embedded Networked Sensor Systems (SenSys)	2013
<i>Graduate Reviewer</i> , Spectra, University of Virginia Undergraduate Journal	2013, 2014
<i>External Reviewer</i> , IEEE Annual International Symposium on Personal, Indoor, and Mobile Radio Communication (PIMRC)	2011

EDUCATIONAL AND STUDENT DEVELOPMENT ACTIVITIES**Teaching, Workshops, and Programs Organized*****Bucknell University***

<i>Instructor</i> , Embedded and Cyber-Physical Systems (ECEG 347)	Spring 2016
<i>Instructor</i> , Engineering: A Humanist Enterprise (ECEG 409/UNIV 350)	Spring 2016
<i>Instructor</i> , Advanced Independent Study (ECEG 408)	Spring 2016
<i>Co-Instructor</i> , Project Planning and Engineering Design (ECEG 400)	Fall 2015
<i>Organizer</i> , Harnessing the Power of Differences Workshop Series	Fall 2015
<i>Instructor</i> , Advanced Independent Study (ECEG 408)	Fall 2015

University of Virginia

<i>Instructor</i> , Model-Based Engineering of Embedded Systems (CS4501/6501, ECE 4502/6502)	Spring 2014
<i>Instructor</i> , BodySim, Independent Study (ECE4501)	Fall 2013
<i>Instructor</i> , Introduction to Engineering, BRIDGE Program	July 7 th – 23 rd , 2013 July 9 th , 2014
<i>Instructor</i> , Introduction to Engineering Program, Robotics Module	June 23 rd – 26 th , 2014 June 24 th – 28 th , 2013 June 25 th – 29 th , 2012

University of Pennsylvania (selected list)

<i>Instructor</i> , Summer Mentorship Program in Engineering,	July – August 2011 July – August 2010
<i>Instructor</i> , GRASP Lab Robotics Leadership Academy	Feb – March, 2011
<i>Technical Communication Fellow</i> , Technical Communication Program	2007 – 2011

Outreach and Mentoring Activities***Bucknell University***

<i>Faculty Mentor</i> , Presidential Fellowship Program	Fall 2015 – present
<i>Faculty Volunteer</i> , Day in the Life Experience for Prospective Students	Fall 2015

University of Virginia

Research Experience for Undergraduates Supervisor, Summer 2014
 Supervised Khade Grant (Biomedical Engineering student at Virginia Commonwealth University)

Computer Engineer, Broadus Wood Elementary School Career Day, December 6, 2013
 Charlottesville, VA

Research Experience for Undergraduates Graduate Mentor June 2012 – Sept. 2013
 mentored Justin Washington (BS Computer Science) University of Virginia

University of Pennsylvania (selected list)

Mentor, Summer Mentorship Program in Engineering July – Aug 2010

July – Aug 2011

Graduate Mentor, National Science Foundation-Louis Stokes Alliances for Minority Participation Undergraduate Research Program Summer 2010

Founder/Mentor, General Robotics Automation Sensing and Perception (GRASP) Lab High School Robotics Mentorship Program Jan 2010 – May 2011

Students Mentored (selected list)***Bucnkell University***

- Caitlin Mahoney (BS Computer Science and Management 2019 | Presidential Fellow)
- Adit Acharya (BS Mechanical Engineering 2019 | Presidential Fellow)
- Yash Mittal (BS Computer Science 2019 | Presidential Fellow)
- Nir Aish (Undeclared College of Arts and Sciences 2019 | Presidential Fellow)
- Yuxuan Huang (BS Computer Engineering 2017)
- Eyuel Seyoum (BS Cell Biology/Biochemistry 2018)

University of Virginia

- Peyman Pejman (BS Computer Engineering 201)
 Now MS Student Computer Engineering, UVA
- *Scott Tepsuporn* (BS Computer Engineering and Computer Science 2015)
 Now Robotics Electrical Engineer, NASA Jet Propulsion Laboratories
- *Khade Grant* (BS Bioengineering student at Virginia Commonwealth University)
- *Justin Washington* (BS Computer Science 2014)
 Now Mobile Developer, Mobiquity
- *John Stevans* (BS Computer Science 2013)
 Now Program Manager at Microsoft, Silicon Valley

University of Pennsylvania

- *Benita Chumo* (BSE and MSE Bioengineering 2013, University of Pennsylvania)
 Now R&D Engineer at Boston Scientific
- *Raven Hooper* (High School Student at Paul Roberson High School, Philadelphia, PA)
 Now undergraduate at Temple University
 Notable achievement: selected participant GRASP REU at University of Pennsylvania
- *Cedric Destin* (High School Student at George Washington High School, Philadelphia, PA)
 Now undergraduate at Temple University
 Notable achievement: selected participant SUNFEST REU at University of Pennsylvania
- *Jimmy Zhao* (High School Student at Central High School, Philadelphia, PA)
 Now undergraduate at Drexel University
 Notable achievements: A. J. Drexel Scholarship \$21k, selected participant Penn Summer Science Initiative

HONORS, AWARDS, PRESS

Academic Honors and Awards

<i>Multicultural Student Services Faculty Fellowship</i> , Bucknell University	Fall 2015
<i>Swanson Faculty Fellowship in the Sciences and Engineering</i> , Bucknell University	2015 – 2018
<i>Louis T. Rader Graduate Research Award</i> , University of Virginia	2015
<i>Best Paper Award</i> , 9 th ICST International Conference on Body Area Networks	Oct. 2014
<i>Eta Kappa Nu</i>	Since 2013
<i>Voigt Teaching Fellowship</i> , University of Virginia	Spring 2014
<i>Best Student Paper Award</i> , 8 th ICST International Conference on Body Area Networks	Oct. 2013
<i>Selected Participant</i> , 1 st Heidelberg Laureate Forum	2013
<i>Google Lime Connect Scholarship</i>	2013-2014
<i>NSF/FDA Scholar-in-Residence Fellowship</i>	2012-2013
<i>Charles L. Brown 1st Year Fellowship</i> , University of Virginia	2011-2012

Service Awards

<i>Engineering Alumni Society E. Stuart Eichert, Jr. Award</i> , University of Pennsylvania	April 2010
<i>Sol Feinstone Undergraduate Award</i> , University of Pennsylvania	May 2009

Press

Open lecture in course covered in “Bravman emphasizes essentiality of both liberal arts and STEM” The Bucknellian March 3, 2016 (URL: <http://bucknellian.net/61898/news/bravman-emphasizes-essentiality-of-both-liberal-arts-and-stem-fields-pull-out-quote-society-must-have-both-en/>)

Profiled in “The Next Step: A Tenure-Track Job” University of Virginia Engineering Foundation Engineering News August 2015 Edition (URL: <http://enews.seas.virginia.edu/?p=33>)

Profiled in “Philip Asare: Improving Design Through Research and Teaching.” UNBOUND, University of Virginia School of Engineering and Applied Science, Winter 2015 (URL: <http://www.joomag.com/magazine/unbound-winter-2015/0654682001421251637/p10>).

Featured in “Communication Countdown: Competition pushes engineers to quickly distill research for broad audience.” *PE Magazine*, October 2014 (URL: http://www.pemagazine-digital.com/pemagazine/october_2014?pg=17#pg17).

SOCIETY MEMBERSHIPS

Member

- Institute for Electrical and Electronics Engineers (IEEE), Computer Society, Life Sciences Community, Engineering in Medicine and Biology Society
- Association for Computing Machinery (ACM), Special Interest Group on Embedded Systems (SIGBED)
- Society for Industrial and Applied Mathematicians (SIAM), Special Activities Group (SAG) on Life Science, SAG on Control and Systems Theory

UNIVERSITY SERVICE AND OTHER ACTIVITIES (SELECTED LIST)

Bucknell University

<i>Participant</i> , Search for Director of Office of Sponsored Projects	Fall 2015
<i>Member</i> , Bucknell in Ghana Advisory Board	Fall 2015 – present

<i>Member</i> , Engineering International Education Committee, College of Engineering	2015 – 2017
<i>Member</i> , Curriculum Working Group, Department of Electrical and Computer Engineering	2015 – 2016
<i>Member</i> , Infrastructure and Facilities Working Group, Department of Electrical and Computer Engineering	2015 – 2016

University of Virginia

<i>Member</i> , Associate Director of Center for Diversity in Engineering Search Committee	Fall 2014
<i>Member</i> , Computer Engineering Graduate Curriculum Committee,	Fall 2012 – May 2015
<i>Organizer</i> , Computer Engineering Communication Forum,	May 2012 – Aug 2013

University of Pennsylvania

<i>Member and Alumni Interviewer</i> , Secondary School Committee University of Pennsylvania	Fall 2011 – present
<i>Technical Director</i> , Philadelphia FIRST Lego League Championship Tournament	Jan 2011
<i>Board of Directors</i> , The Christian Association at the University of Pennsylvania	Mar 2009 – July 2011
<i>Vice President</i>	June 2009 – July 2011
<i>Founder and Past President</i> , Penn African Performing Arts	Oct 2006 – May 2011