Waylon Brunette

100 Grace Hopper Ln, RV1 2810, Augusta, GA 30901
wbrunette@augusta.edu

Research Interests

My research interests include mobile computing, computing for good, ubiquitous computing, cybersecurity, sensor-enhanced computing, edge computing, and smart applications. Specifically, I am interested in using devices, sensors, services, and interfaces to create secure computer systems that integrate seamlessly into a user's environment, allowing technology to fade into the background of daily life. My research focuses on building, secure, configurable, resilient systems for heterogeneous environments. For information services to be successful in resource-constrained environments, software needs to be secure, robust, and flexible enough to be composable by non-programmers and be deployable by resource-constrained organizations. Isolating reusable framework components from the user-configurable application components can reduce the skill required to customize applications.

Education

University of Washington Seattle, WA 2012 – 2020
Doctor of Philosophy in Computer Science
Dissertation: *Open Data Kit 2: Building Mobile Application Frameworks for Disconnected Data Management*
GPA 3.94

University of Washington Seattle, WA 2009 – 2012
Masters of Science in Computer Science
GPA 3.93

University of Washington Seattle, WA 1997 – 2002
Bachelor of Science in Computer Engineering (Software) with distinction.
GPA 3.81

Experience

Assistant Professor – Augusta University (Aug 2022 – Current)

My research focuses on building and evaluating secure computing technologies. Specifically, my research interests include mobile computing, computing and development, ubiquitous computing, cybersecurity, zero-trust architectures, sensor-enhanced computing, edge computing, and smart applications. My research seeks to develop technology that can resiliently function in heterogeneous global environments with varying infrastructures (e.g., poor connectivity, inconsistent electrical power) and varying levels of resources.

Postdoctoral Scholar – University of Washington (Oct 2020 – Mar 2022)

My research focuses on mobile data management platforms, classroom technology, and information and computing for development (ICTD). The mobile data management research focuses on building technology for global health, humanitarian assistance, and international development. Specifically, I focus on expanding the ODK-X platform by working with international partners such as the Red Cross and PATH to scale technology globally in response to COVID-19. I design, build, and evaluate resilient mobile technologies optimized for usage in resource-constrained and infrastructure-constrained environments. I investigate designs to isolate reusable framework components from the user-configurable application components to reduce the skill level required to customize mobile applications.

Research Assistant – University of Washington (Sept 2009 – Aug 2020)

My research focused on creating tools and frameworks to simplify building and managing domain-specific mobile information management applications in resource-constrained environments. Specifically, I developed, expanded, and refined mobile application frameworks as part of the Open Data Kit project. Isolating reusable framework components from user-configurable application components can reduce the skill-level required by organizations (e.g., NGOs, governments, companies, volunteer groups) to customize and deploy mobile data management applications. Additionally, I investigated using low-cost sensors connected to smartphones to create a mobile medical platform that can be used in resource-constrained environments.

Software Engineering Intern – Google (May 2009 – Sept 2009)

Developed a suite of tools to help organizations collect, aggregate, and visualize their data called Open Data Kit (ODK). Specifically, developed code for Google's AppEngine and Android platforms. I was part of the ODK team awarded a Google Focused Research Grant for $1.35 million to develop an open-source data collection suite at UW.

Embedded Systems Engineer – University of Washington (Dec 2008 – April 2009)

Developed a prototype information system for informal bus services that operate in cities in low-income countries to allow riders to obtain information about bus arrival times using cell phones. Specifically, I worked on a prototype module that utilized GPS and cellular/SMS messages to report the bus's position to a central server.

Software Development Engineer – Amazon.com (March 2007 – May 2008)

Designed and developed new distributed software for Amazon's global payments platform. Specifically, led the design of a new service that validates and securely stores all of a customer's payment information (e.g., credit cards, bank accounts, stored value cards) for processing and retrieval. Other development activities included upgrading legacy systems and helping to develop a new workflow service to process payment transactions by sending them to financial institutions. These services were required to be accurate, fault-tolerant (99.99% uptime), and highly scalable to handle the billions of dollars of current Amazon.com sales and scale for any future growth.

Research Scientist/Engineer – University of Washington (June 2002 – June 2006)

Research - Collaborated with external researcher partners (e.g., Intel Research, Exploratorium) to develop new technologies and usage models for ubiquitous computing. Designed, built, and deployed "proof of concept" research platforms. I worked on projects at various levels, including application software, low-level firmware, software infrastructure, hardware, and user interface. Led development teams at UW and coordinated the project specifications and responsibilities for joint projects with external research partners. Some example projects include:

- **Smart/Automated Applications**
  - *Reminding System:* Created a privacy-centric reminding system that predicted when a user might be forgetting something they will soon need by tracking an object's context with location and RFID.
  - *DARPA ASSIST/Personal Fitness*: Part of a team that built a system utilizing basic sensors to record and infer a person's activity (useful for battlefield reporting or determining the number of calories burned). Specifically, I wrote firmware to rapidly sense and stream encoded results enabling real-time processing and designed a PCB daughterboard with a USB hub and power regulation.
  - *Wearable/Watch Interface:* Worked with a team to design a prototype watch device with various I/Os (e.g., a screen, accelerometer) that communicates with UCB motes to act as a personal I/O device to surrounding infrastructure.
- **Radio Frequency Identification**
  - *RFID Ecosystem*: Designed a distributed system that tracks object movements in a building to explore research problems related to privacy, security, uncertainty, evolving application requirements, and social implications of RFID.
  - *Handheld RFID:* Built a handheld RFID read/write system with software infrastructure to enable smart spaces.
  - *eXspots (Exploratorium Museum):* Built a system that used RFID as an actuation and tracking mechanism to enhance a visitor's museum experience. Information collected was used to create a customized online museum experience.
- **Sensor Networks**
  - *PlantCare:* Deployed sensors for a closed-loop actuation system that cares for plants using sensors and robots.
  - *DataMULEs:* Designed, analyzed, and simulated a mobile transport layer to connect sparse sensor networks.
  - *Location:* Deployed and characterized a sensor network to aid in location tracking.

Education - Part-Time Faculty (Teaching Associate Level) - Helped overhaul the lab curriculum for both graduate and undergraduate courses. Taught the lab portion of the courses and wrote the majority of the new labs, instructions, and assignments. The revised curriculum focuses on digital design and software issues in embedded systems relating to microcontrollers, development tools, interrupt programming, interfacing peripherals, writing drivers, debugging techniques, and communication protocols.

CSEP567 – Design and Implementation of Digital Systems – Fall 2005
CSE477 – Digital System Design - Spring 2004
CSE466 – Software for Embedded Systems - Fall 2002, Fall 2003, Fall 2004, Spring 2005, Winter 2006,
CSE370 – Introduction to Digital Design – Fall 2003, Winter 2004, Winter 2005

Research Assistant – University of Washington (Oct 2001 – June 2002)

Developed software that controlled sensing and communication of sensor nodes (UCB motes).

Teaching Assistant – University of Washington (Jan 2001 – April 2001)

CSE142 - Computer Programming I - Winter 2001 and Spring 2001

Responsibilities included preparing and teaching a quiz section, grading, tutoring, and preparing assignments.

Business Services Administrative Intern – Peninsula School District (Jun 1997 – Dec 2001)

Worked in fiscal management during college breaks (both summer and winter), assisting the deputy superintendent in creating and managing the district's $80 million budget. Examples of duties include cost-analysis, creating funding formulas, determining taxes to levy, reducing waste, writing and implementing policies and procedures, conducting training seminars, space reorganization, and presenting results to superiors, board of directors, and/or the community. These duties were performed concurrently by simultaneously managing multiple projects involving multiple people in multiple departments.

FELLOWSHIPS

NSF Graduate Research Fellowship

PUBLICATIONS

TEXTBOOK CHAPTER

- W. Brunette and C. Hartung. "The Open Data Kit Project." In T. Madon, R. Anderson, L. Casaburi, K. Lee, A. Rezaee, and A. Gadgil, editors. *An Introduction to Development Engineering*. Springer. Open Access. 2022. https://www.springer.com/gp/book/9783030860646

REFEREED JOURNALS/MAGAZINES PUBLICATIONS

- A. S. Ginsburg, J. Delarosa, W. Brunette, S. Levari, M. Sundt, C. Larson, C. T. Agyemang, S. Newton, G. Borriello, R. Anderson. "mPneumonia: An Innovation for Diagnosing and Treating Childhood Pneumonia in Low-resource Settings: A Feasibility, Usability, and Acceptability Study in Ghana." PloS one. Volume 11, Issue 10, Oct 2016.
- A. Kipf, W. Brunette, J. Kellerstrass, M. Podolsky, J. Rosa, M. Sundt, D. Wilson, G. Borriello, E. Brewer, E. Thomas. "A proposed integrated data collection, analysis and sharing platform for impact evaluation." Development Engineering. Volume 1, 2016, pp 36-44.
- N. Kumar, W. Brunette, N. Dell, T. Perrier, B. Kolko, G. Borriello, R. Anderson. "Understanding Sociotechnical Implications of Mobile Health Deployments in India, Kenya, and Zimbabwe." Information Technologies & International Development. Volume 11, Issue 11, Dec. 2015, pp 17-22.
- A. S. Ginsburg, J. Delarosa, W. Brunette, S. Levari, M. Sundt, C. Larson, C. T. Agyemang, S. Newton, G. Borriello, R. Anderson. "mPneumonia: Development of an Innovative mHealth Application for Diagnosing and Treating Childhood Pneumonia and Other Childhood Illnesses in Low-Resource Settings." PloS one. Volume 10, Issue 10, Oct 2015.
- Y. Anokwa, C. Hartung, W. Brunette, A. Lerer, G. Borriello. "Open Source Data Collection in the Developing World". IEEE Computer. Volume 42, Issue 10, Oct. 2009, pp 97 – 99.
- S. Jain, R. C Shah, W. Brunette, G. Borriello, and S. Roy. "Exploiting mobility for energy efficient data collection in wireless sensor networks." Mobile Networks & Applications. Vol. 11, Num 3, June 2006, pp 327-339.
- B. Hemingway, W. Brunette, T. Anderl, and G. Borriello. "The flock: mote sensors sing in undergraduate curriculum." IEEE Computer. Volume 37, Issue 8, Aug. 2004, pp72 – 78.
- R. C. Shah, S. Roy, S. Jain and W. Brunette, "Data MULEs: Modeling and analysis of a three-tier architecture for sparse sensor networks", Elsevier Ad Hoc Networks Journal, Vol. 1, Issues 2-3, Sept. 2003, pp. 215-233.

REFEREED CONFERENCE PUBLICATIONS

- W. Brunette, C. Larson, S. Jain, A. Langford, Y. Y. Low, A. Siew, R. Anderson. "Global Goods Software for the Immunization Cold Chain." In Proceedings of ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS '20), June 2020.
- W. Brunette, S. Sudar, M. Sundt, C. Larson, J. Beorse, R. Anderson. "Open Data Kit 2.0: A Services-Based Application Framework for Disconnected Data Management" In Proceedings of the 15th International Conference on Mobile Systems, Applications, and Services (MobiSys' 17). June 2017.
- W. Brunette, M. Vigil, F. Pervaiz, S. Levari, G. Borriello, R. Anderson. "Optimizing Mobile Application Communication for Challenged Network Environments." In Proceedings of the 2015 Annual Symposium on Computing for Development (ACM DEV '15). Dec 2015.
- W. Brunette, S. Sudar, N. Worden, D. Price, R. Anderson, and G. Borriello. "ODK Tables: Building easily customizable information applications on Android devices". In Proceedings of the 3rd ACM Symposium on Computing for Development (ACM DEV '13). Jan. 2013.
- W. Brunette, R. Sodt, R. Chaudhri, M. Goel, M. Falcone, J. VanOrden, and G. Borriello. "Open Data Kit Sensors: A Sensor Integration Framework for Android at the Application-Level." In Proceedings of the 10th International Conference on Mobile Systems, Applications, and Services (MobiSys' 12). June 2012.
- R. Chaudhri, W. Brunette, M. Goel, R. Sodt, J. VanOrden, M. Falcone, and G. Borriello. "Open Data Kit Sensors: Mobile Data Collection with Wired and Wireless Sensors." In Proceedings of the 2nd ACM Symposium on Computing for Development (ACM DEV' 12), March 2012.
- R. E. Anderson, B. E. Kolko, L. Schlenke, W. Brunette, A. Hope, R. Nathan, W. Gerard, J. Keh, and M. Kawooya. 2012. "The midwife's assistant: designing integrated learning tools to scaffold ultrasound practice." In Proceedings of the 5th International Conference on Information and Communication Technologies and Development (ICTD' 12), March 2012, pp 200-210.
- B. E. Kolko, A. Hope, W. Brunette, K. Saville, W. Gerard, M. Kawooya, and R. Nathan. "Adapting collaborative radiological practice to low-resource environments." In Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work (CSCW '12), Feb. 2012, pp 97-106.
- W. Brunette, M. Hicks, A. Hope, G. Ruddy, R.E. Anderson, and B. E. Kolko, "Reducing Maternal Mortality: An Ultrasound System for Village Midwives," in Proceedings of the 1st Annual IEEE Global Humanitarian Technology Conference (IEEE GHTC 2011), Oct. 2011, pp.84-90.
- W. Brunette, W. Gerard, M. A. Hicks, A. Hope, M. Ishimitsu, P. Prasad, R. E. Anderson, G. Borriello, B. E. Kolko, and R. Nathan. "Portable Antenatal Ultrasound Platform for Village Midwives," In Proceedings of the 1st ACM Symposium on Computing for Development (ACM DEV '10), Dec 2010.
- R. E. Anderson, W. Brunette, E. Johnson, C. Lustig, A. Poon, C. Putnam, O. Salihbaeva, B.E. Kolko, G. Borriello. "Experiences with a Transportation Information System that Uses Only GPS and SMS," in Proceedings of the 4th Intl. ACM/IEEE Conf. on Information & Communication Technologies and Development (ICTD 2010). Dec. 2010.
- C. Hartung, Y. Anokwa, W. Brunette, A. Lerer, C. Tseng, and G Borriello. "Open Data Kit: Building Information Services for Developing Regions," in Proceedings of the 4th International ACM/IEEE Conference on Information & Communication Technologies and Development (ICTD 2010), London, UK. Dec.2010.
- R. E. Anderson, A. Poon, C. Lustig, W. Brunette, G. Borriello, and B. E. Kolko. "Building a Transportation Information System Using Only GPS and Basic SMS Infrastructure," in Proceedings of the 3rd International ACM/IEEE Conference on Information & Communication Technologies and Development (ICTD '09). April 2009.
- W. Brunette, J. Lester, A. Rea, and G. Borriello. "Some Sensor Network Elements for Ubiquitous Computing," in Proceedings of the 4th international Symposium on Information Processing in Sensor Networks (ISPN '05). April 2005, pp 388-392.
- G. Borriello, W. Brunette, M. Hall, C. Hartung, and C. Tangney. "Reminding about Tagged Objects using Passive RFIDs," in Proceedings of the 6th International Conference on Ubiquitous Computing (UbiComp '04). Sept. 2004, pp 36-53.
- A. LaMarca, W. Brunette, D. Koizumi, M. Lease, S. B. Sigurdsson, K. Sikorski, D. Fox, and G. Borriello. "PlantCare: An Investigation in Practical Ubiquitous Systems," in Proceedings of the 4th International Conference on Ubiquitous Computing (UbiComp '02). Sept. 2002, pp 316-322.
- A. LaMarca, W. Brunette, D. Koizumi, M. Lease, S. B. Sigurdsson, K. Sikorski, D. Fox, and G. Borriello. "Making Sensor Networks Practical with Robots," in Proceedings of the 1st International Conference on Pervasive Computing (Pervasive '02). Aug. 2002, pp 152-166.

REFEREED WORKSHOP PUBLICATIONS

- J. Henry, D. Richins, S. Weldon, S. Kesavamoorthy Vijayalakshmi, T. Price, W. Brunette. "Seeking Trust in Resource-Constrained Edge Networks with Mobile Agents: Complications with ZTA." In Proceedings of the 27th International Workshop on Mobile Computing Systems and Applications (HotMobile '26).
- W. Brunette, M. Sundt, N. Dell, R. Chaudhri, N. Breit, and G. Borriello. "Open Data Kit 2.0: Expanding and refining information services for developing regions." In Proceedings of the 14th Workshop on Mobile Computing Systems and Applications (HotMobile' 13). Feb. 2013.
- Y. Anokwa, C. Hartung, W. Brunette, J. Beorse, and G. Borriello. "Dynamic data collection for participatory science in Open Data Kit." CHI 2011 Workshop: Data Collection by the People, for the People. May 2011.
- A. Hope, R. Anderson, B. Kolko, W. Gerard, M. Hicks, P. Prasad, W. Brunette, and K. Saville. "Designing an Intelligent Medical Assistant for Diagnostic Ultrasound." 2nd Intl Workshop on Intelligent User Interfaces for Developing Regions (IUI4DR). Feb. 2011.
- E. Welbourne, M. Balazinska, G. Borriello, and W. Brunette. "Challenges for Pervasive RFID-based Infrastructures," in Proceedings of the 5th IEEE International Conference on Pervasive Computing and Communications Workshops, Pervasive RFID/NFC Technology and Applications (PerTec '07). March 2007, pp 388-394.
- G. Borriello, W. Brunette, J. Lester, P. Powledge, and A. Rea. "An ecosystem of platforms to support sensors for personal fitness," in Proceedings of the International Workshop on Wearable and Implantable Body Sensor Networks. Apr. 2006.
- S. Jain, R. C. Shah, W. Brunette, G. Borriello, and S. Roy, "Exploiting Mobility for Energy-Efficient Data Collection in Sensor Networks," in Proceedings of IEEE/ACM International Symposium on Modeling and Optimization in Mobile, Ad hoc and Wireless Networks, (WiOpt '04) March 2004.
- W. Brunette, C. Hartung, B. Nordstrom, and G. Borriello. "Proximity interactions between wireless sensors and their application," in Proceedings of the 2nd ACM International Workshop on Wireless Sensor Networks and Applications (WSNA '03). Sept. 2003, pp 30-37.
- R. C. Shah, S. Roy, S. Jain, and W. Brunette. "Data MULEs: Modeling a three-tier architecture for sparse sensor networks," in Proceedings of the 1st IEEE International Workshop on Sensor Network Protocols and Applications (SPNA '03), May 2003, pp 30-41.

REFEREED POSTERS

- W. Brunette, M. Sundt, A. Ginsburg, and G. Borriello. "Customizing and improving medical workflows using ODK Survey." In Proceedings of the 4th Annual Symposium on Computing for Development (ACM DEV-4' 13). Dec. 2013.

REFEREED DEMONSTRATIONS

- W. Brunette, S. Sudar, and G. Borriello. "Open Data Kit 2.0 tool suite." In Proceedings of the 12th annual international conference on Mobile systems, applications, and services (MobiSys' 14). June 2014.
- W. Brunette. "Open Data Kit". 1st International Workshop on Mobile Data Collection in the Developing World (DATADEV `12). July 2012.
- Y. Anokwa, W. Brunette, C. Hartung, A. Lerer, G. Borriello. "Open Data Kit". in Adjunct Proceedings of the 11th International Conference on Ubiquitous Computing (UbiComp '09). Sept. 2009.
- S. Hsi, R. Semper, W. Brunette, A. Rea, and G. Borriello. "eXspot: A Wireless RFID Transceiver for Recording and Extending Museum Visits," in Adjunct Proceedings of the 6th International Conference on Ubiquitous Computing (UbiComp '04). Sept. 2004.
- W. Brunette, A. Rea, and G. Borriello. "Extended Sensor Mote Interfaces for Ubiquitous Computing," in Adjunct Proceedings of the 5th International Conference on Ubiquitous Computing (UbiComp '03). Sept. 2003. pp 21-23.

INVITED DEMOS

- W. Brunette et al. "Open Data Kit and Mezuri". USAID Higher Education Solutions Network Technical Convening (TechCon 2016) – Cambridge, MA – Nov. 2016.
- W. Brunette et al. "Mezuri". USAID Higher Education Solutions Network Technical Convening (TechCon 2014) – San Francisco & Berkeley, CA – Nov. 2014.
- W. Brunette. "Open Data Kit". USAID Higher Education Solutions Network Technical Convening (TechCon 2013) - Williamsburg, VA – Nov. 2013

INVITED PAPERS

- B. Hemingway, W. Brunette, and G. Borriello. "Variations on the Flock: Wireless Embedded Systems in an Undergraduate Curriculum", in Proceedings of the 2006 Australian Telecommunications, Networks, and Applications Conference (ATNAC '06). Dec. 2006, pp. 366-370.

INVITED TALKS

- W. Brunette. “Open Data Kit” Virginia Tech, Computing for Social Good, Nov 2024.
- W. Brunette. “Zero Trust Architecture for Denied, Disrupted, Intermittent, or Limited Communication Environment” Symposium on Cyber-Security and Cyber-Physical Systems, Athens, GA, Aug 2024.
- W. Brunette. “Open Data Kit” Cornell University, Computing and Global Development, Jan 2024.
- W. Brunette. “Open Data Kit: Building Mobile Application Frameworks for Disconnected Data Management,” Cornell University, Computing and Global Development, Sept 2022.
- W. Brunette. “Open-Source Experiences Building Open Data Kit.” University of Cape Town, Advanced Software Engineering, Sept 2021.
- W. Brunette. “Open Data Kit: Building Mobile Application Frameworks for Disconnected Data Management.” Cornell University, INFO 6600: Technology for Underserved Communities, Feb 2021.
- W. Brunette. “Open Data Kit: Building Mobile Application Frameworks for Disconnected Data Management.” UW CSEP599 Development Engineering. May 2020
- W. Brunette. “Mobile Data Collection using ODK.” Universidad Peruana Cayetano Heredia (UPCH). May 2017
- W. Brunette. “Open Data Kit.” Development Impact Lab (DIL) Webinar Series on Mobile Data Collection. April 2016.
- W. Brunette. “Open Data Kit: Building and Refining Information Services for Underserved Populations.” Contemporary Issues in Global Health. Feb 2015.
- G. Borriello, W. Brunette, N. Dell. “Open Data Kit”. Expert Consultation Workshop: Designing the Future of Disaster preparedness and Response Using Mobile Technology - US Army HADR workshop. Washington, DC, July 2014.
- W. Brunette. “ODK 2.0: Expanding and Refining Open Data Kit’s Capabilities” Pakistan ICTD Workshop 2014 - Lahore, PK, Mar 2014.
- W. Brunette. “ODK 2.0: Expanding and Refining Open Data Kit’s Capabilities” SMART Summit - Google, Mountain View, CA. Jan 2014.
- W. Brunette. “Open Data Kit: Building Information Services for Developing Regions”. USAID Higher Education Solutions Network Technical Convening (TechCon 2013) - Williamsburg, VA – Nov. 2013.
- W. Brunette and G. Borriello. “Open Data Kit”. NASA Data Bridge Workshop – NASA Jet Propulsion Laboratory, Pasadena CA – Oct. 2013.
- W. Brunette. “The Flock: Mainstreaming Motes into the Undergraduate Computer Engineering Curriculum”, at the National Science Foundation Networking of Sensor Systems (NSF-NOSS) Principal Investigator and Informational Meeting. Oct. 2004.

ADVISING & MENTORING

GRADUATE STUDENTS

- Justin Henry
- Sumesh Kesavamoorthy-Vijayalakshmi
- Amaya Holmes
- Marcus Corulli

UNDERGRADUATE STUDENTS

- Omkar Agashe
- Marshall Bradley
- Nathan Brandes
- Nathan Breit
- Stephen Cooper
- Malcolm Daigle
- Prati Dhamija
- Michael Falcone
- Joshua Fan
- Ray Fung
- Wayne Gerard
- Matthew Hall
- Carl Hartung
- Kelly Ho
- Mitchell Ishimitsu
- Seokmin Kim
- Shahar Levari
- Ori Levari
- Lin Li
- Chenmin Liu
- Ryan Li
- Luyi Lu
- William Marsh
- Todd Meng
- Madhav Murthy
- John Nguyen
- Maegan Nevalsky
- Ben Nordstrom
- Ishan Narula
- Saloni Parikh
- Pratik Prasad
- Tim Price
- Dylan Price
- Anthony Poon
- Derek Richins
- Tony Song
- Ajay Subramanyam
- Sang-Wha Sien
- Cameron Tangney
- Jaylen Van Orden
- Randy Yiv
- Ruiheng Wang
- Bryce Williams
- Charles Yao
- Leiyi Zhang
- Weiming Zhang

SERVICE

SCHOOL:

- Chair, SCCS Faculty Assembly. 2024-Current
- Chair, Research Computing Infrastructure Committee. 2023-Current
- Security Authority, 2023-Current
- Faculty Course Manager, CSCI 2700: Ethics in Computer Science. 2023-Current
- Event Coordinator. Collegiate Penetration Testing Regional Competition 2023, 2024 & 2025.
- Volunteer. SEC Regionals of the International Collegiate Programming Contest 2023.
- Volunteer. Collegiate Penetration Testing Regional Competition 2022.

UNIVERSITY:

- Chair, AUFS IT Policy/Data Security Workgroup. 2025-Current
- Member, Conflict-of-Interest Committee. 2024-Current
- Member, Cybersecurity Governance Committee. 2024-Current

LEADERSHIP:

- Co-Editor-In-Chief, ACM Journal on Computing and Sustainable Societies 2025-Current
- Area Editor, ACM Journal on Computing and Sustainable Societies 2023-2025
- ODK-X Project Management Committee (Open Source). 2020-Current
- General Chair – ACM SIGCAS Computing and Sustainable Societies 2022 (COMPASS 2022).
- ODK-X Technical Steering Committee (Open Source). 2018-2020
- Open Data Kit Project Management Committee (Open Source). 2017-2020
- UW-CSE Curriculum Committee 2010-2011

COMMUNITY:

- Presenter, AU Seminar Series at Via Cognitive Health (2025)
- Outreachy Mentor. 2021–2025 (7 internship periods)
- Google Summer of Code Mentor - 2021
- Final Round Judge - Big Ideas (UC System + HESN). Mar 2017, May 2021
- Pre-proposal Judge - Big Ideas (UC System + HESN). Nov 2016
- Facilitator/Mentor - 1st Asian Students Symposium on Emerging Technologies (ASSET 2016). June 2016
- Organizer “Open Data Kit” at Code4Humanity, Grace Hopper Celebration of Women in Computing. Oct 2013
- Change Seminar Food Coordinator, UW-CSE 2011 – 2017

ACADEMIC REVIEWER:

- ACM Journal on Computing and Sustainable Societies 2023-Current
- ACM COMPASS Program Committee 2021
- IEEE Computer. 2020 and 2014
- ICTD X Program Committee 2019
- MobileHCI Papers 2018
- ICTD Notes 2017
- ACM CHI Late-Breaking Work 2017
- Journal of the American Medical Informatics Association. Oct 2015
- ACM UbiComp Papers and Notes 2015
- ACM UbiComp Papers and Notes 2014

PATENTS

- "Secure validation using hardware security modules." J. Jenks, BB. Low, H. Char, PS. Vosshall, W. Brunette - US Patent 10,885,516, 2021
- "Hardening tokenization security and key rotation." J. Jenks, T. Sethi, BB. Low, J. Cetina, J. Johansson, W. Brunette, H. Char, S. Proffit - US Patent 8,892,868, 2014

GRANTS

- 2026 – 2027 -- Augusta University IGP $26,240 -- Automated Generation and Evaluation of Clinical Case-Based Multiple-Choice Questions Using Biomedical Ontologies and Transformer Models (with Co-PIs Nicole Rockich Winston & Ahmet Guven).

TEACHING

- **CSCI 2700 – Ethics in Computer Science – Augusta University**
    - *Fall 2022, Spring 2023, Fall 2023, Spring 2024, Spring 2025, Spring 2026*
- **CSCI 3420 - Distributed and Mobile Systems – Augusta University**
    - *Fall 2024, Fall 2025*
- **CSCI 8510 – Zero Trust Architecture for Challenged Comm Environments – Augusta University**
    - *Fall 2024*
- **CSCI 8720 – Problems in Computer & Cyber – Augusta University**
    - *Spring 2024, Spring 2025*