

Chapter 13

Profiles of Women Securing the Future with TIPPSS for IoT



Florence D. Hudson

13.1 Introduction

This book celebrates the wise wonderful women who are working on securing the future through their work in TIPPSS—trust, identity, privacy, protection, safety and security—related to the Internet of Things [1–4]. They are technologists, astrophysicists, aerospace engineers, computer scientists, biochemists, cybersecurity professionals, experts in identity and access management (IAM), policy experts, lawyers, judges, students, and venture capitalists, with experience in industry, academia, and government. The majority have a doctorate degree. They are very accomplished, and impassioned to make the world a better, safer place. They are leaders in their field, and in their communities, in their countries, and across the world. As you read these women’s stories, please think about how we can inspire more young girls and women to pursue their professional and personal passion, to be our leaders of tomorrow. Let them inspire you to join the world of TIPPSS and the Internet of Things, to make the world a better and safer place.

13.2 Author Profiles of Women Securing the Future with TIPPSS for IoT

Alicia D. Johnson is the resilience and recovery manager for the San Francisco Department of Emergency Management. Her work uses human-centered design principles to build collaborative relationships between the community and disaster responders to better protect the people and places we value. She has responded to

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numerous disasters and large events including the 2008 Democratic National Convention, 2012 Superstorm Sandy, 2015 Supreme Court Ruling on Gay Marriage and San Francisco PRIDE Celebration, 2016 Super Bowl 50, 2017 UPS Active Shooter, and the 2017 Northern California Fires. She regularly serves as an Emergency Operations Center Manager for the City of San Francisco. Her work has inspired countless communities to educate their residents about disaster preparedness using connection rather than fear. She received her bachelor's degree in communications and political science and master's in Public Administration from the University of Colorado. She currently serves as a Senior Fellow for the West Big Data Innovation Hub [5]. When she is not in the Emergency Operations Center, Alicia can easily be found camera in hand, documenting the world around her [6, 7].

Britt Danneman is an investor at the Los Angeles-based venture capital firm Alpha Edison [8]. She primarily invests at the Seed to Series B stages to help set business model, fundamental strategy, team, and capital plan. She invests thematically, with one such focus on trust. Prior to joining Alpha Edison, Britt worked in distressed and middle market investing at Bain Capital Credit in Boston. She also worked in corporate development and strategy in San Francisco at the fintech startup Funding Circle. She received her MBA from Harvard Business School and undergraduate degree in Finance and Management from The Wharton School at The University of Pennsylvania [9].

Hon. Cynthia D. Mares, Esq., is a district court judge in the 18th Judicial District of Colorado. She is Senior Legal Advisor and Advisory Board Member for Axon Global [10], a cybersecurity company located in Houston, Texas. She is also Vice Chair for the Colorado Gaming Commission. Judge Mares is a 2016 alumna of the Harvard Kennedy Executive Education program and a governance fellow with the National Association of Corporate Directors since 2016. She is past president of the Hispanic National Bar Association and Colorado Hispanic Bar Association [11].

Edna Conway serves as Cisco's chief security officer, Global Value Chain, creating clear strategies to deliver secure operating models for the digital economy [12]. She has built new organizations delivering cyber security, compliance, risk management, sustainability and value chain transformation. She drives a comprehensive security architecture across Cisco's third-party ecosystem. Recognition of her industry leadership includes: membership in the Fortune Most Powerful Women community, a Fed 100 Award, Stevie "Maverick of the Year Award," a Connected World Magazine "Machine to Machine and IOT Trailblazer" Award, an SC Media Reboot Leadership Award, a New Hampshire TechProfessional of the Year Award, and CSO of the Year Award at RSA. She holds a JD from the University of Virginia School of Law, and a bachelor's degree from Columbia University, with executive education at Stanford University, MIT and Carnegie Mellon University. Prior to Cisco, she was a partner in an international private legal practice and served as Assistant Attorney General for the State of New Hampshire [13].

Eysha Shirrine Powers is a senior software engineer at IBM Corporation [14]. She is a cryptographic software developer with 15 years of experience in IBM Z Cryptography and Security. She joined IBM with a bachelor of computer science

from the University of Illinois at Urbana-Champaign. After joining IBM, she continued her education with a master of information technology from Rensselaer Polytechnic Institute. Eysha is a prominent speaker for IBM Z Crypto at conferences in the USA and abroad, and has several cryptography patents [15].

Fen Zhao is an early stage investor and head of data science research at Alpha Edison [8]—a Los Angeles, CA-based venture capital firm investing in tech-driven industry transformations. Alpha Edison is focused on redesigning the machinery of cognition to reduce the noise that has overwhelmed most venture capital investment strategies and to remove cognitive biases in decision making. Prior to joining Alpha Edison, Fen Zhao developed public private partnerships at the National Science Foundation [16] in the areas of data science and cybersecurity. She created and led the Big Data Hubs and Spokes Program and was the program coordinator for the Secure and Trustworthy Cyberspace (SaTC) program. During the Obama Administration, Dr. Zhao was an AAAS Fellow at the White House Office of Science and Technology Policy (OSTP) working on national security S&T issues. Before her work in the public sector, Dr. Zhao was an associate with McKinsey and Company's Risk Management Practice, serving public sector clients with a focus on mortgage and debt markets. Fen received her PhD in Computational Astrophysics from Stanford University and her BS in Physics and Mathematics for Computer Science from MIT. Her doctoral research was conducted at the Kavli Institute for Particle Astrophysics and Cosmology at SLAC National Accelerator Labs, where she developed supercomputing astrophysical simulations of magnetic fields within the early universe. She is a native New Yorker [17].

Florence D. Hudson is founder and CEO of FDHint, LLC [18] consulting in advanced technologies and diversity & inclusion. Formerly IBM [14] vice-president and chief technology officer, Internet2 senior vice president and chief innovation officer, and an aerospace engineer at Grumman and NASA, she is special advisor for the NSF Cybersecurity Center of Excellence at Indiana University [19], and Northeast Big Data Innovation Hub at Columbia University. She serves on Boards for Princeton University, Cal Poly San Luis Obispo, Stony Brook University, and Union County College. She is cofounder of IEEE-ISTO Blockchain in Healthcare Global [20], and on the Editorial Board for Blockchain in Healthcare Today. She graduated from Princeton University with a BSE in Mechanical and Aerospace Engineering, and attended executive education at Harvard Business School and Columbia University [21].

Grace Wilson Caudill is a USAID (United States Agency for International Development) [22] scholar and an NSF EPSCoR (National Science Foundation Experimental Program to Stimulate Competitive Research Fellow). During her academic tenure she conducted research on wireless sensor motes, performing data analytics on airport runway surface conditions, and data modeling on big datasets. She attended Kentucky State University, a Historically Black College or University (HBCU) in Frankfort, Kentucky, where she earned an Associate of Science degree in Electronics Technology, two bachelor of science degrees in Computer Science

and Network Engineering, and a master of science degree in Information Security and Assurance. Grace enjoys learning and engaging in bleeding-edge research, she has embarked on earning her PhD in Cybersecurity. She engages as a consultant with businesses and individuals on Cybersecurity for a Women-owned Small Business—FSS Technologies (FSST). Grace currently functions in the role of IT Auditor Principal, focusing on Cybersecurity at the University of Kentucky. She volunteers as a YMCA Certified Level II Swim Official for Kentucky and Ohio. Alongside her career and scholarly endeavors she enjoys hiking, and playing volleyball and recreational golf. Grace recently held the position of Cyberinfrastructure Engineer and Campus Champion on an NSF grant aimed at improving and supporting the cyberinfrastructure forays of researchers and students at universities. She has presented at the national level in higher education at various conferences; where she served as lead chairperson in conducting Birds-of-a-Feather (BoF) forums, leading presentations, participating in workshops and hosting scholarly discussions centered around High Performance Computing, Cyberinfrastructure, and Cybersecurity [23].

Hannah Short specializes in Trust, Identity and Security for Science. Although based at the European Organisation for Nuclear Research (CERN) [24], on the border of Switzerland and France, she spends most of her time collaborating with a network of colleagues from the Research and Education sector around the globe. After completing a master's degree in astrophysics, Hannah decided to pursue her newfound interest in programming by becoming a software developer. Since that point life has brought many and varied projects in commercial and research organizations leading to her current position at CERN. As more of our lives are spent online, security and privacy have become areas that Hannah prioritizes, for both the technical and ethical challenges. A particular topic of focus is security for distributed authentication systems, for which Hannah received a GÉANT [25] Community Award following her contribution to a trust framework for security incident response. In addition, Hannah chairs the Steering Committee for the WISE Community, Wise Information Security for collaborating E-Infrastructures [26]. WISE provides a forum for security representatives from e-Infrastructures to share best practices and, most importantly, to meet face-to-face and build trust between one another. In her home life, Hannah fills her days with mountain sports and introducing the next generation of ladies to coding—hopefully before they too reach university! Computing outreach events for female students were directly responsible for her transition into software and Hannah hopes to pay on the favor [27].

Joanna Lyn Grama, JD, CISSP, CIPT, CRISC, is a senior consultant with Vantage Technology Consulting Group [28], where she advises clients on information security policy, compliance, governance, and data privacy issues. Never content to confine her interests to a single bucket, Joanna grew interested in information security, privacy, and related legal and policy issues in higher education as a “second career.” Technology development moves quickly and the law often has trouble keeping up with the pace of change. Taking advantage of job opportunities, formal and informal networks, classes, volunteer opportunities, and mentor opportunities, Joanna was

thrilled to share what she learned in the textbook, *LEGAL ISSUES IN INFORMATION SECURITY* (Second edition, 2014). Prior to joining Vantage she was the Director of the EDUCAUSE [29] Cybersecurity and IT GRC (governance, risk, and compliance) Programs, which are designed to serve higher education IT professionals with resources, learning and professional development opportunities, and a strong peer network. She is a member of the US Department of Homeland Security's Data Privacy and Integrity Advisory Committee, appointed to committee by former Secretary Janet Napolitano, and serves as the chairperson of its technology subcommittee [30]. Joanna received her J.D. from the University of Illinois College of Law with honors and a B.A. in international relations from the University of Minnesota [31].

Karen Herrington is the director of information technology analytics and visualization at Virginia Polytechnic Institute and State University, also known as Virginia Tech [32]. An Information Technology professional with over 30 years of experience, she is a proven leader, having been at the forefront of enabling transformative technologies in both the private sector and the Higher Education arena. Karen's areas of expertise include identity management, Internet of Things, multifactor authentication, data management and analytics. She holds both a master's and a bachelor's degree in computer science from Mississippi State University [33].

Kim Milford began serving as executive director of the Research & Education Networking Information Sharing & Analysis Center (REN-ISAC) at Indiana University (IU) in 2014 [34]. She works with members, partners, sponsors, and advisory committees to direct strategic objectives in support of members, providing services and information that allow higher educational institutions to better defend local technical environments, and is responsible for overseeing administration and operations. She led an eMBA course, "Managing Information Risk and Security" for IU's Kelley School of Business. Since joining Indiana University in 2007, Ms. Milford has served in several roles leading strategic IT initiatives. As Chief Privacy Officer, she coordinated privacy-related efforts while serving on IU's Assurance Council, chairing the Committee of Data Stewards, and directing the work of the University Information Policy Office including IU's IT incident response team. From 2005 to 2007, Ms. Milford worked as Information Security Officer at the University of Rochester leading an information security program that included disaster recovery planning, identity management, incident response, and user awareness. In her position as Information Security Manager at University of Wisconsin-Madison from 1998–2005, she assisted in establishing the university's information security department and co-led in the development of an annual security conference. Ms. Milford provides cybersecurity, information policy, and privacy expertise and presentations at national and regional conferences, seminars and consortia. Ms. Milford has a B.S. in Accounting from Saint Louis University in St. Louis, Missouri and a J.D. from John Marshall Law School in Chicago, Illinois [35].

Licia Florio works for the GÉANT Association [25], as a senior trust and identity manager. Over the last 15 years, Licia has been involved in many key initiatives that make up the current European and global Authentication and Authorisation

Infrastructure for Research & Education (R&E). She supported the Task Force that produced the first eduroam (federated access to wireless networks) pilot—a service that now counts tens of thousands of hotspots in 89 countries across the world; she led the working group that created REFEDS (the Research and Education FEDerations Group) [36], the global forum that gathers R&E identity federations that now consists of 90 R&E Identity federations worldwide; she managed the European Funded project on Authentication and Authorisation for Research Collaboration (AARC) to enable federated access for large-scale research collaborations. Currently she co-leads the Trust and Identity activities in the context of the GÉANT project, the pan-European data network for the research and education community. In June 2018, Licia was awarded the prestigious Medal of Honour by the Vietsch Foundation [37] that supports research and development of advanced internet technology for scientific research and higher education [38].

Meredith M. Lee is the founding executive director of the West Big Data Innovation Hub [5], a venture launched with support from the National Science Foundation to build and strengthen partnerships across industry, academia, nonprofits, and government. Based at the University of California—Berkeley [39], Dr. Lee collaborates globally as part of a national network of Big Data Innovation Hubs to address scientific and societal challenges. Her work focuses on translational data science, including initiatives in Smart and Connected Communities, Water, Disaster Recovery, Health, and Education. She currently leads the Women in Data Science (WiDS) Datathon, a hands-on feature of the Global WiDS Conference that reached more than 100,000 participants and 150 cities in 2018 [40]. Meredith was previously an AAAS Science & Technology Policy Fellow at the Homeland Security Advanced Research Projects Agency, guiding strategic programs in graph analytics, risk assessment, machine learning, data visualization, and distributed computing. Under the Obama Administration, she led the White House Innovation for Disaster Response & Recovery Initiative and contributed to several science, technology, and open data/open government initiatives. Meredith completed her B.S., M.S., and Ph.D. in Electrical Engineering at Stanford University, and holds a US Patent from her postdoctoral research at the Canary Center for Cancer Early Detection. Her formative experiences have included working on satellite communications at MIT Lincoln Laboratory, real-time data monitoring at Agilent Laboratories, nanofabrication at IBM T.J. Watson Research Center, and microprocessors at Intel. She has taught Human-Centered Design and Innovation at Stanford as well as in government and continues to advise organizations with efforts involving technology, data science, multistakeholder collaboration, and entrepreneurship. Meredith cofounded the nonprofit NationOfMakers.org, and supports STEM efforts through serving on advisory boards including NASA DIRECT STEM, the Optical Society of America, and the National Leadership Council for the Society for Science and the Public. Her work has been featured by whitehouse.gov, ArsTechnica, The Washington Post, Forbes, WIRED, Bloomberg, and Nature [41].

Qi Pan is a digital media associate on the Future Leaders Programme at GlaxoSmithKline (GSK), a world-leading healthcare company [42]. She was the

General Data Protection Regulation (GDPR) [43] expert for Consumer Healthcare Tech, responsible for training and successfully rolling out GDPR-compliant technologies to the GSK Consumer Healthcare salesforce across EU markets in 2018. Qi organizes thought-leadership debates in GSK, where external experts are invited to bring the outside in and inspire transformative ways to benefit consumers and patients. Prior to GSK, Qi studied Molecular and Cellular Biochemistry at the University of Oxford, graduating with an MBiochem for her research into the role of epigenetics in X chromosome inactivation. Aside from work, Qi is a staunch advocate of inclusion and diversity with a focus on women in STEM [44].

Sinjoni Mukhopadhyay is a fourth-year computer science PhD candidate at the University of California, Santa Cruz [45]. Prior to beginning her PhD career, she completed her bachelor's degree in electronics and telecommunication from India, followed by her master's (Efficient Reconstruction Techniques for Disaster Recovery in Secret-Split Databases) in computer science from the University of California, Santa Cruz. Sinjoni's areas of interest include storage security, archival storage, distributed storage, and cloud storage. She is currently working on building a self-improving synthetic workload generator using neural networks that can generate workloads which can be used to test predicted future systems. In her free time she usually reads novels, paints, or practices Indian classical dance forms like bharata natyam and odissi [46].

Soody Tronson With over 25 years of operational experience in technology, business, management, and law in start-up and fortune 100 companies, Soody's strategic insight coupled with her practical approach is her key asset, whether acting as counsel and advisor or leading her own ventures. After holding technical and management positions at Schering Plough and HP where she developed and took several products to market; and practicing law at Hewlett-Packard Inc., a successfully acquired medical device start up, and two national law firms, Heller Ehrman and Townsend and Townsend; she formed the boutique intellectual property law firm, STLgip [47], which counsels domestic and international clients in IP and technology transactions in a wide range of technologies. Soody is who you could call a Renaissance woman with a strong sense of community. She serves in board, advisory, and leadership capacities with several organizations including STEM to Market national accelerator created by the Association of Women in Science, California Lawyers Association Executive Committee of the Intellectual Property Section, Licensing Executives Society USA/Canada Women in Licensing Committee, and the Palo Alto Area Bar Association. Currently, Soody, in her role as a licensing executive, is leading efforts to provide best practices and recommendations on streamlining data sharing agreements. In this effort, she is working with the Northeast and West Big Data Innovation Hubs and the Licensing Executives Society. On the civic side, Soody is a Commissioner with the City of Menlo Park in California and an active hands-on volunteer with several civic organizations including Defy Ventures, an entrepreneurship, employment, and character development training program for currently and formerly incarcerated men, women, and youth. Soody is also founder and CEO of a consumer medical device company, Presque, developing

wearable technologies to help mothers get their babies off to a healthy start. She is also the cofounder of HighNoteCoffee Co., a third-wave coffee roasting company in Silicon Valley. Soody holds a J.D., an M.S. in industrial chemistry, and a B.S. in chemistry, and is licensed to practice before the State of California and the US Patent and Trademark Office. She is a named inventor on numerous patents and patent applications covering polymer chemistry, medical devices, printing mechanisms, fluid delivery systems, sensor design, and consumer products [48].

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