Presenter Bios

Gail-Joon Ahn, Arizona State University
Welcome/Opening Remarks

Gail-Joon Ahn is a Professor of Computer Science and Engineering in the School of Computing, Informatics and Decision Systems Engineering (CIDSE), Fulton Entrepreneurial Professor, and Director of the Center for Cybersecurity and Digital Forensics and the Laboratory of Security Engineering for Future Computing at Arizona State University. Prior to joining ASU, he was the Founding Director of the Center for Digital Identity and Cyber Defense Research (DICyDER) at UNC Charlotte. His research foci include security analytics and big-data-driven security intelligence, vulnerability and risk management, access control and security architecture for distributed systems, identity and privacy management, cyber crime analysis, security-enhanced computing platforms, and formal models for computer security. His research has been supported by NSF, NSA, DoD, ARO, ONR, DoE, DoJ, Bank of America, CISCO, Freeport McMoRan, GoDaddy, Hewlett Packard, Google, Microsoft, and the Robert Wood Johnson Foundation. He is the recipient of a U.S. Department of Energy (DoE) Early Career Principal Investigator Award (2003), an Educator of the Year Award from the Federal Information Systems Security Educators' Association (FISSEA) (2005), and a Best Researcher Award from CIDSE (2013). Also, he serves as Associate Editor-in-Chief of the *IEEE Transactions on Dependable and Secure Computing*, Associate Editor of the *IEEE Transactions on Information Forensics and Security*, and Associate Editor of the *ACM Transactions on Information and Systems Security*, and is on the Editorial Board of *Computers & Security*. He is also the Steering Committee Chair of the ACM Symposium on Access Control Models and Technologies. He is currently the information director of the ACM Special Interest Group on Security, Audit and Control (SIGSAC) and is on the Steering Committee of the ACM Symposium on Information, Computer and Communications Security. He also holds seven U.S. patents on cybersecurity and privacy.

Prashant Anantharaman, Dartmouth College
Showcase: CREDC Research

Prashant Anantharaman is a second year graduate student at Dartmouth College working with Dr. Sean Smith and Dr. Sergey Bratus. His current work includes scalable PKI for industrial control systems and consumer-side smart grid and using language-theoretic security to build secure parsers for various SCADA/ICS protocols. Prashant also spent a summer at SRI International working on language-theoretic security in Internet-of-Things. He completed his Bachelors in Engineering in Computer Science and Engineering from College of Engineering Guindy, India in 2015.

Sriramya Bhamidipati, University of Illinois at Urbana-Champaign
Showcase: CREDC Research

Sriramya Bhamidipati is a graduate student under Prof. Grace Gao in the Department of Aerospace Engineering at the University of Illinois at Urbana-Champaign. She received her B.Tech. with honors in Aerospace Engineering and minor in Systems and Controls Engineering from Indian Institute of Technology Bombay, India in 2015. Her research interests include GPS, power and control systems, computer vision and UAVs.

Dennis Gammel, Schweitzer Engineering Laboratory
Breakout Session — Cyber Supply Chain Provenance and Protection

Dennis Gammel is a graduate of the University of Idaho with a B.S. in Applied Mathematics and has been actively working in the computing and communications industries since 1996. His career experience includes network security, network architecture, database application development, ASIC simulation, and design software, as well as RTOS application development. Dennis is presently the R&D Director over Communication Systems at Schweitzer Engineering Laboratories, Inc. (SEL), responsible for the quality, development, and marketing of the SEL Communication Systems product lines. He has been with SEL since March 2005 and has 20 years of secure software engineering experience. Dennis served an

External Advisory Board (EAB) member for the Trustworthy Cyber Infrastructure for the Power Grid (TCIPG) Center and currently serves as an Industrial Advisory Board (IAB) member for the Cyber Resilient Energy Delivery Consortium (CREDC).

Adam Hahn, Washington State University
Showcase: CREDC Research

Adam Hahn is currently an assistant professor in the Department of Electrical Engineering and Computer Science at Washington State University. His research interests include cybersecurity of the smart grid and cyber-physical systems (CPS), including intrusion detection, risk modeling, vulnerability assessment, and secure system architectures. He received M.S. and Ph.D. degrees from the Department of Electrical and Computer Engineering at Iowa State University in 2006 and 2013. Previously, he worked as a Senior Information Security Engineer at the MITRE Corporation, supporting numerous cybersecurity assessments within the federal government and leading research projects in CPS security.

Carl Hauser, Washington State University
Breakout Session Goals and Summary

Carl Hauser is an Associate Professor in the School of Electrical and Computer Engineering at Washington State University. He works on projects related to secure and timely wide-area data dissemination for the power grid in the context of the GridStat project at Washington State University. He is currently developing techniques for flexible embedding of cryptographic authentication protocols in the power communication infrastructure to accommodate evolution of cryptographic technology over the long life typical of devices used in the power grid. He is also working on achieving end-to-end, real-time performance in wide-area control networks, addressing both operating system and network scheduling issues.

Carol Hawk, U.S. Department of Energy
CEDS Program Update

Carol Hawk, Ph.D. is Manager of the Cybersecurity for Energy Delivery Systems (CEDS) R&D Program for the office of Electricity Delivery and Energy Reliability in the Department of Energy (DOE). Dr. Hawk conducted her Ph.D. research in High-Energy Physics at Rutgers University as a member of the Collider Detector at Fermi National Accelerator Laboratory Collaboration. The CEDS R&D program is working to advance the energy sector's Roadmap vision of resilient energy delivery systems designed, installed, operated, and maintained to survive a cyber-incident while sustaining critical functions. In addition, she brings a variety of work experiences to DOE including telecommunications (at Bell Communications Research) as well as fuel cell electrochemistry (at United Technologies Research Center and later at the University of Connecticut). Prior to joining the DOE, Dr. Hawk performed operations research with the Center for Naval Analyses.

Bheshaj Krishnappa, ReliabilityFirst
Showcase: Industry/Research Partnership

Bheshaj (Bhesh) Krishnappa joined ReliabilityFirst in August 2012, a regional regulator overseeing electric service reliability across 13 U.S. States and Washington D.C. Initially, he worked as Critical Infrastructure Protection Compliance Auditor and currently works as a Principal in the Risk Analysis and Mitigation Department. With over 20 years of experience, he has worked for Utility, Software & Services, Manufacturing, Aerospace, Mortgage, and Finance companies in consulting and senior roles. He was instrumental in leading several small to large scale IT and security projects that have enabled businesses to transform and be resilient in delivering their mission. He holds a B.S. in Electrical Engineering, Bangalore University, India, and an MBA in Sustainable Business (Renewable Energy), Marylhurst University, USA. He actively holds CISSP, CISM, and Carnegie Mellon University's Executive CISO certifications.

Ben Miller, Dragos, Inc.
Case Study Presentation & Discussion: Analyzing the Evolving Ukraine Cyber Attack(s)

Ben Miller is Director, Threat Operations Center at the industrial cyber security company Dragos, Inc. where he leads a team of analysts in performing active defense inside of ICS/SCADA networks. In this capacity he is responsible for performing a threat hunting, incident response, and malware analysis mission for the industrial community. Previous to his role at Dragos, Inc. Ben was the Associate Director, Electricity Information Sharing & Analysis Center (Electricity ISAC) and led cyber analysis for the sector. He and his team focused on leading edge cyber activities as they relate to the North American bulk electric system. Ben was recognized as instrumental in building new capabilities surrounding information sharing and analytics in his five years at the E-ISAC. Prior to joining the E-ISAC, Ben built and led a team of 9 focused on Network Security Monitoring, forensics, and incident response at a Fortune 150 energy firm. His team received numerous accolades from industry and law enforcement. During this time he also served in a CIP implementation project and various enterprise-wide mitigation programs. Ben has over 18 years' experience and currently holds the CISSP and GIAC GREM certifications. Ben has served in various roles including both planner and player roles in GridEx I, II, and III. He served as a member of the NERC Cyber Attack Task Force, an acknowledged contributor to NIST SP 800-150, a panel member of the NBISE Advanced Defender panel, and adviser on CI Advanced Defender Training program. Ben is an accomplished speaker in various venues including SANS, ICSWJG, ShmooCon and others. Ben also helps run Charmsec; an informal 'citysec-style meet up' located in Baltimore.

David M. Nicol, University of Illinois at Urbana-Champaign
Welcome/Opening Remarks, CREDC Overview and Update, Tools, Technology, Transition — Making it Happen

David M. Nicol is the Franklin W. Woeltge Professor of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign, Director of the Information Trust Institute, and Principal Investigator of both CREDC and the DHS-funded Critical Infrastructure Resilience Institute. Previously, he held faculty positions at the College of William and Mary and at Dartmouth College. His research interests include high-performance computing, simulation modeling and analysis, and security. He was elected Fellow of the ACM for his contributions in those areas. He is co-author of the widely used textbook *Discrete-Event Systems Simulation* and was the inaugural awardee of the ACM Special Interest Group on Simulation's Distinguished Contributions Award, for his contributions in research, teaching, and service in the field of simulation.

Pete Sauer, University of Illinois at Urbana-Champaign
Poster Session and Closing Remarks

Peter W. Sauer holds the W. W. Grainger Chair in Electrical Engineering in the Department of Electrical & Computer Engineering at the University of Illinois. He is working on projects related to power system operational reliability. These include the modeling and simulation of loads, generators, and smart grid components. They also include the challenge of dynamic modeling of renewable resources such as wind turbines and solar arrays. Issues such as low inertia generation are being examined to determine their impact on contingency analysis, system recovery following disturbances, and automatic generation control. Sauer is a co-founder and Site Director of the NSF-sponsored Power Systems Engineering Research Center. He served as the program director for power systems at the National Science Foundation from September 1991 to August 1992. He was a cofounder and chairman of the Board of Directors of PowerWorld Corporation from 1996 to 2001. He served in the U.S. Air Force as a facilities design engineer from 1969 to 1973 (Langley AFB, VA) and 1982 to 1998 (Chanute AFB and Scott AFB, IL). He is a registered professional engineer in Virginia and Illinois, a Fellow of the IEEE, and a member of the U.S. National Academy of Engineering.

Anna Scaglione, Arizona State University
Welcome/Opening Remarks

Anna Scaglione is a professor of electrical and computer engineering at Arizona State University. She was previously on the faculty of UC Davis, Cornell, and UNM. Dr. Scaglione's expertise is in the broad area of statistical signal processing, communication networks, and electric power systems. Her current research focuses on reliable energy delivery and on other aspects at the intersection between intelligent infrastructure and information systems. Dr. Scaglione was elected

an IEEE Fellow in 2011. She received the *IEEE Transactions on Signal Processing* Best Paper Award in 2000, and more recently was honored with the 2013 IEEE Donald G. Fink Prize Paper Award for the best review paper that year in the IEEE publications; also, her work with her student earned the 2013 IEEE Signal Processing Society Young Author Best Paper Award.

Sachin Shetty, Old Dominion University
Showcase: Industry/Research Partnership

Sachin Shetty is an Associate Professor in the Virginia Modeling, Analysis and Simulation Center at Old Dominion University. He holds a joint appointment with the Department of Modeling, Simulation and Visualization Engineering and the Center for Cybersecurity Education and Research. Sachin Shetty received his PhD in Modeling and Simulation from the Old Dominion University in 2007. Prior to joining Old Dominion University, he was an Associate Professor with the Electrical and Computer Engineering Department at Tennessee State University. He was also the associate director of the Tennessee Interdisciplinary Graduate Engineering Research Institute and directed the Cyber Security laboratory at Tennessee State University. He also holds a dual appointment as an Engineer at the Naval Surface Warfare Center, Crane Indiana. His research interests lie at the intersection of computer networking, network security and machine learning. He has received over $10 million in funding from National Science Foundation, Air Office of Scientific Research, Air Force Research Lab, Office of Naval Research, Department of Homeland Security, Department of Energy, and Boeing. He has authored and coauthored over 125 research articles in journals and conference proceedings and two books. He is recipient of DHS Scientific Leadership Award and has been inducted in Tennessee State University's million dollar club. He has served on the technical program committee for ACM CCS, IEEE INFOCOM, IEEE ICDCN, and IEEE ICCCN. He is an Associate Editor for International Journal of Computer Networks.

Sean W. Smith, Dartmouth College
Breakout Session — PKI in Current and Emerging EDS

Sean W. Smith is a Professor in the Department of Computer Science at Dartmouth College and is the Director of Dartmouth's Institute for Security, Technology and Society. He has been working in information security—attacks and defenses, for industry and government—since before there was a Web. In graduate school, he worked with the U.S. Postal Inspection Service on postal meter fraud; as a postdoc and staff member at Los Alamos National Laboratory, he performed security reviews, designs, analyses, and briefings for a wide variety of public-sector clients; at IBM T.J. Watson Research Center, he designed the security architecture for (and helped code and test) the IBM 4758 secure coprocessor, and then led the formal modeling and verification work that earned it the world's first FIPS 140-1 Level 4 security validation. Smith has published over ninety refereed papers, been granted over a dozen patents, and advised over three dozen Ph.D., M.S., and senior honors theses. His security architecture is used in thousands of financial, e-commerce, and rights management installations worldwide.

Kyle Squires, Arizona State University
Welcome/Opening Remarks

Kyle Squires is the dean of the Ira A. Fulton Schools of Engineering at Arizona State University. Squires was appointed dean of the Fulton Schools in February 2016 after serving as vice dean and interim dean during the 2015-2016 academic year. Previously, he served as director of the School for Engineering of Matter, Transport and Energy (SEMTE), one of the six Ira A. Fulton Schools of Engineering. As SEMTE director, he oversaw degree and research programs in aerospace engineering, chemical engineering, materials science and engineering, mechanical engineering and the professional science master's program in solar energy engineering and commercialization. Squires is a professor of mechanical and aerospace engineering. Prior to joining ASU in 1997, Squires was on the faculty of the mechanical engineering department at the University of Vermont. Previously he was a postdoctoral research associate at the Center for Turbulence Research at Stanford University. Squires' expertise encompasses computational fluid dynamics, turbulence modeling of both single-phase and multi-phase flows, and high-performance computing. Specific interests include the use of direct numerical simulation and large eddy simulation applied to particle-laden turbulent flows and the development of hybrid Reynolds-averaged and large eddy simulation techniques for high Reynolds number wall-bounded flows. Squires applies his

expertise to exploration of ways to improve the aerodynamics of aircraft, ground vehicles and sports equipment. He has held numerous visiting appointments in the U.S., Japan and France and was elected a Fellow of the American Physical Society in 2008. Squires holds a B.S. in mechanical engineering from Washington State University and M.S. and Ph.D. degrees in mechanical engineering from Stanford University.

Zachary Tudor, Idaho National Laboratory
Breakout Session — Engineering Secure EDS

Zachary Tudor is the Associate Laboratory Director of Idaho National Laboratory's National and Homeland Security's organization, a major US center for national security technology development and demonstration. At INL, he is responsible for INL's Nuclear Nonproliferation, Critical Infrastructure Protection and Defense Systems missions. Previously, Tudor served as Program Director in the Computer Science Laboratory at SRI International, where he supported DHS's Cyber Security Division on projects including the Linking the Oil and Gas Industry to Improve Cybersecurity consortium, and the Industrial Control System Joint Working Group R&D working group. He has served as a member of (ISC)2's Application Security Advisory Board and the NRC's Nuclear Cyber Security Working Group, as well as the Vice Chair of the Institute for Information Infrastructure Protection at George Washington University. Tudor is a member of (ISC)2's Board of Directors, and currently serves as an Industrial Advisory Board (IAB) member for the Cyber Resilient Energy Delivery Consortium (CREDC). A retired U.S. Navy Submarine Electronics Limited Duty Officer and Chief Data Systems Technician, Tudor holds an M.S. in Information Systems from George Mason University concentrating in cybersecurity, where he was also an adjunct professor teaching graduate courses in information security.

Alfonso Valdes, University of Illinois at Urbana-Champaign
Showcase: CREDC Research

Alfonso Valdes is the Managing Director of Smart Grid Technologies at the University of Illinois. In that capacity, he is responsible for a portfolio of diverse research activities, including the Cyber Resilient Energy Delivery Consortium (CREDC) as well as joint projects in energy resiliency with industry and utility partners. In this role he is responsible for strategic direction of the various smart grid initiatives at the university, including interaction with utility and industry stakeholders. His research interests focus on security and resiliency of infrastructure systems, particularly innovative techniques for intrusion detection, as well as security implications of renewable energy integration and smart grid demand response mechanisms. Mr. Valdes is the Illinois lead on an industry-academic partnership studying security in time-critical distributed substation protection systems. He regularly participates in infrastructure security roadmapping efforts at the invitation of DOE, DHS, and the National Institute of Standards and Technology (NIST). He is also active in international collaborations, including ones with KTH (the Swedish Royal Institute of Technology) through the University of Illinois INSPIRE program, NWO (The Netherlands' equivalent of the NSF), and the European Union (as an external advisor to the CRISALIS project, securing critical infrastructures).

Tim Yardley, University of Illinois at Urbana-Champaign
Case Study Q&A and Discussion

Tim Yardley is the Associate Director of Technology and a Senior Researcher at the Information Trust Institute at the University of Illinois at Urbana-Champaign. His primary duties focus on defining the vision and direction for applied research through emerging technology as well as conducting research to address the core mission of the Institute. His research is focused on trustworthiness and resiliency in critical infrastructure, with particular focus on cyber security in systems like the power grid and telecommunications. Through development of advanced testbed environments, Mr. Yardley helps to apply research to prove out theory and validate those efforts prior to field deployment, speeding the process of technology transition and the realism of fundamental research. His work covers a variety of areas, including control systems, telecommunications systems, critical incident response, and simulations of real-world systems. Other areas of interest include health technology, mobile system security, financial systems, and dynamically tailored environments. Beyond research, he is involved in security assessments, external relations, national working groups, technology development and transfer, and entrepreneurial activities. Through being an active contributor in open-source

projects around the world and having come from industry, Mr. Yardley provides a unique perspective with a proven track record of solving difficult problems.

Saman Zonouz, Rutgers University
Lightning Talk Session Chair

Saman Zonouz has been an Assistant Professor in the Electrical and Computer Engineering Department at Rutgers University since September 2014 and is the Director of the 4N6 Cyber Security and Forensics Laboratory. His research has been awarded an NSF CAREER Award in 2015, a Google Security Reward in 2015, a Top-3 Demo designation at IEEE SmartGridComm 2015, the Faculty Fellowship Award of AFOSR in 2013, the Best Student Paper Award at IEEE SmartGridComm 2013, and the University of Miami EARLY CAREER Research award in 2012, as well as the University of Miami Provost Research Award in 2011. The 4N6 research is currently supported by the National Science Foundation (NSF), the Department of Homeland Security (DHS), the Office of Naval Research (ONR), the Department of Energy (DOE), the Advanced Research Projects Agency Energy (ARPA-E), the Department of Education (DOE), WinRiver, GrammaTech, Google, and Fortinet Corporation, including tech-to-market initiatives. Saman's current research focuses on systems security and privacy, trustworthy cyber-physical critical infrastructures, binary/malware analysis and reverse engineering, and adaptive intrusion tolerance architectures. He has served as the chair, program committee member, guest editor, and/or reviewer for top international conferences and journals; he serves on the Editorial Board for the *IEEE Transactions on Smart Grid*. He obtained his Ph.D. in Computer Science, specifically, intrusion tolerance architectures for cyber-physical infrastructures, from the University of Illinois at Urbana-Champaign in 2011.