Assessment of the National Institute of Standards and Technology (NIST) Information Technology Laboratory (ITL)

Committee

Kwang-Cheng Chen

Chair

Dr. Kwang-Cheng Chen has been a Professor with the Department of Electrical Engineering, University of South Florida, and a cybersecurity faculty with Cyber Florida, after his career with IBM T.J. Watson Research Center, HP Labs., COMSAT Corp., and National Taiwan University and National Tsing Hua University in Taiwan. Dr. Chen's patented technology has been adopted in Bluetooth, IEEE 802.11 wireless LANs (WiFi), 4G and LTE-A, and 5G mobile communications. His startup company delivered world's first on-chip AES in wireless ICs, and first low-power broadband wireless solution for smart phones. Dr. Chen is an IEEE Fellow and a recipient of 2014 IEEE Jack Neubauer Memorial Award, 2011 IEEE ComSoc WTC Recognition Award, and many paper awards for his IEEE journal and conference papers. He served the National Academies Panel on Review of ITL, NIST, in 2018.

Gail-Joon Ahn

Member

GAIL-JOON AHN is a Professor of Computer Science and Engineering in the School of Computing and Augmented Intelligence and Founding Director for the Center for Cybersecurity and Trusted Foundations at Arizona State University. His principal research and teaching interests are in information and systems security areas. His research has been supported by the National Science Foundation, National Security Agency, Department of Defense, Department of Energy, Office of Naval Research, Cisco, GoDaddy, Bank of America, Hewlett Packard, Microsoft, Samsung, PayPal and Robert Wood Johnson Foundation. He is currently the information director of the ACM Special Interest Group on Security, Audit and Control and has served the Associate Editor-in-Chief of IEEE Transactions on Dependable and Secure Computing, the Editorial Board of Computers & Security, and the Associate Editor of ACM Transactions on Information and System Security. He is a recipient of DoE's Early Career Principal Investigator Award and has published over 250 articles in reputed journals and conferences, accumulating more than 17,000 citations. He is also the recipient of the Educator of the Year Award given by the Federal Information Systems Security Educator's Association in 2005. He is a Fellow member of IEEE and holds ten U.S. patents in the field of computer science and engineering.

Jandria S. Alexander

Member

JANDRIA S. ALEXANDER is a vice president at Booz Allen Hamilton where she leads cybersecurity, research and development, and serves as Chief Technology Officer. She is a subject matter expert on cybersecurity, resilient platform, operational technology, and multidomain mission systems with over twenty years in the field. A nationally recognized cybersecurity expert, Jandria has participated in National Academy of Sciences studies related to cybersecurity research and new aviation technologies. In 2014, she was appointed by former Virginia Governor Terry McAuliffe to serve on the bipartisan Virginia Cyber Security Commission to expand the state’s economic footprint in cyber technology and protect critical infrastructure from cyber threats. She led the effort’s unmanned systems cybersecurity industry, government, and academia consortium. Over the length of her career, Jandria has provided cybersecurity and digital transformation leadership, market strategy, and solution development for the Department of Defense and the intelligence community as well as many civil and commercial organizations. Before joining Booz Allen in 2017, she was a cybersecurity leader in engineering and technology at a federally funded research and development corporation. She served as the chair of the American Association of Aeronautics and Astronautics’ Diversity and Inclusion Working Group from 2017-2021. She has a B.S. in computer science from Brandeis University and an M.S. in technology management from American University.

Steven M. Bellovin

Member

STEVEN BELLOVIN (NAE) is the Percy K. and Vidal L. W. Hudson Professor of Computer Science at Columbia University, member of the Cybersecurity and Privacy Center of the university's Data Science Institute, and an affiliate faculty member at Columbia Law School. He does research on security and privacy and on related public policy issues. He received a B.A. degree from Columbia University, and an MS and Ph.D. in Computer Science from the University of North Carolina at Chapel Hill. Bellovin has served as Chief Technologist of the Federal Trade Commission and as the Technology Scholar at the Privacy and Civil Liberties Oversight Board. He is a member of the National Academy of Engineering and has served on the Computer Science and Telecommunications Board of the National Academies of Sciences, Engineering, and Medicine. In the past, he has been a member of the Department of Homeland Security's Science and Technology Advisory Committee, and the Technical Guidelines Development Committee of the Election Assistance Commission.

Thomas A. Berson

Member

THOMAS A. BERSON (NAE) is founder of Anagram Laboratories, an information security consultancy. He is also Cybersecurity Advisor to the CEO and Board of Directors at Salesforce. Prior to Anagram, Dr. Berson co-founded and was VP Research at Sytek, acquired by Hughes Network Systems. He earlier worked at IBM Research, Ford Aerospace, and Xerox PARC. He has experience in the design, implementation, and evaluation of cryptosystems, including algorithms and key distribution protocols. While at Sytek Dr. Berson developed end-to-end encryption, challenge/response authentication, and high-assurance cross-domain products. At Salesforce he wrote the cloud security policy and mentors executives responsible for establishing, operating, and governing trust worldwide. He is a member of the National Academy of Engineering and a Fellow of the International Association for Cryptologic Research. He was an editor of the Journal of Cryptology and served as Chair of the IEEE Technical Committee on Security and Privacy. Dr. Berson earned his B.S. in Physics from the State University of New York and his Ph.D. in Computer Science from the University of London. He was a Visiting Fellow in Mathematics at Clair Hall, Cambridge. He has been a member of relevant past National Academies' committees, including the Committee to Review DOD C4I Plans and Programs, the Committee on Offensive Cyber Warfare, and the Committee on Developing a Cybersecurity Primer: Leveraging Two Decades of National Academies Work. He is currently a member of the National Academies' Forum on Cyber Resilience.

Charles Blauner

Member

CHARLES BLAUNER is an internationally recognized expert independent advisor on Cyber Resiliency, Information Security Risk Management and Data Privacy. Charles is the President of Cyber Aegis, a boutique cyber risk management consultancy. Charles is also an Operating Partner and the CISO in Residence at Team8 Ventures, an Operating Advisor at Crosspoint Capital, a Venture Advisor at the Cyber Mentor Fund, and an Executive in Residence at the Partnership for NYC's FinTech Lab. Previously, Charles had a distinguished career working on Information and Cyber Security for over 30 years, 25 years in Financial Services, including being the Chief Information Security Officer (CISO) at JP Morgan and Deutsche Bank, and most recently the Global Head of Information Security at Citi. During this time, Charles held numerous industry leadership roles including Chair of the Financial Services Sector Coordinating Council (FSSCC), founding Director of the Financial Services Information Sharing and Analysis Center (FS-ISAC), and the Chair of the OpenGroup's Security Program. Charles has worked closely with banking regulators around the world (OCC, FRB, BoE, MAS, and HKMA) to help reduce the risk posed by cyber threats to the financial sector at large. Charles is a regular conference speaker and has had the honor of appearing in front of US House and Senate committees. In 2015, Charles was recognized by his peers, winning the Wasserman Award, which recognizes outstanding career achievement and contribution to the Information Systems Audit, Control, Security, Risk Management, and/or Governance professions. Charles has a M.S. in Computer Science from the University of Southern California (USC) and a B.S. in Computer Science from Rensselaer Polytechnic Institute (RPI).

Russel E. Caflisch

Member

RUSSEL CAFLISCH is currently Director of the Courant Institute of Mathematical Sciences at New York University. Prior to this position, he was Director of the Institute for Pure and Applied Mathematics (IPAM) at UCLA 2008-2017, and he held faculty positions at Stanford University, UCLA. Russel Caflisch is an applied mathematician whose research is on analysis and numerical methods for physical sciences. He is known for analysis of the fluid dynamic limit in kinetic theory and of vortex sheets in incompressible flow, for mathematical modeling of epitaxial growth, and for development of Monte Carlo methods for kinetic theory and finance. Prof. Caflisch is a member of the National Academy of Sciences and a Fellow of the American Academy of Arts and Sciences. Prof. Caflisch graduated from Michigan State University with a BS in mathematics in 1975 and received his PhD in mathematics in 1978 at the Courant Institute, NYU.

Kelly Caine

Member

KELLY CAINE is Professor in the Human-Centered Computing Division of the School of Computing at Clemson University. She is the founder and co-director of the Humans and Technology Lab (www.hatlab.org) where she leads research in human factors, cybersecurity, human-centered computing, privacy, usable security, and human-computer interaction. Her work in these areas has been continuously funded by agencies such as the National Science Foundation for over a decade. She is co-author of Understanding Your Users: A Practical Guide to User Research (2015) and has published over 100 peer-reviewed papers in venues ranging from ACM CHI to the Journal of the American Medical Informatics Association. She and her students have received awards for their collaborative research from the National Academy of Engineering, the Institute of Medicine, the American Public Health Association, and the Human Factors and Ergonomics Society. She is key faculty in Clemson’s Cybersecurity Center, an associate in the Human Factors Institute, and a member of the Human Factors and Ergonomics Society. Prior to joining Clemson, she was Principal Research Scientist in the School of Computing at Indiana University’s Center for Applied Cybersecurity Research, and a UX researcher at Google. She holds degrees from the University of South Carolina (B.A.) and the Georgia Institute of Technology (M.S. and Ph.D.).

Richard Chow

Member

RICHARD CHOW is a University Research Director and Scientist in the University Research and Collaboration office within Intel Labs. He guides several of Intel's academic research centers in the areas of security, networking, autonomous systems, and machine learning. In the past, he has held positions as Research Scientist at PARC, Research Scientist at Samsung Electronics R&D, and Security Architect at Yahoo and Motorola. Dr. Chow has over 20 US patents and patent applications and over 30 peer-reviewed journals, conference papers, and book chapters. He was awarded runner-up for the 2010 PET Award for Outstanding Research in Privacy Enhancing Technologies. Dr. Chow has a Ph.D. in mathematics from UCLA and a B.A. in mathematics from the University of Pennsylvania.

Paul England

Member

PAUL ENGLAND (NAE) is a distinguished engineer at Microsoft Research working on computer security. Paul is best known for foundational work in Trusted and Confidential Computing. This includes various hardware roots-of-trust, such as the Trusted Platform Module (TPM), and the secure-enclave technologies that are now implemented in most mainstream microprocessors and supported in most mainstream operating systems. Paul has advised governments and regulators on many aspects of cyber-security and policy. Paul was elected to the National Academy of Engineering in 2019 for these contributions. Paul has a Ph.D. in condensed matter physics from Imperial College, London.

Andre Freitas

Member

ANDRÉ FREITAS is an Associate Professor (Senior Lecturer) at the Department of Computer Science at the University of Manchester (UK), an AI Group leader at Cancer Research UK Manchester Institute and a Research Group Leader at the Idiap Research Institute (Switzerland). He leads the Neuro-symbolic AI Group. His main research interests are on enabling the development of AI/NLP methods to support complex and controlled expert-level inference, with a particular emphasis on supporting scientific discovery. He is an active contributor to the main conferences and journals in AI/Natural Language Processing (NLP) including AAAI, NeurIPs, ACL, EMNLP, COLING, EACL, EDBT, TACL, Computational Linguistics (with over 100 peer-reviewed publications).

Alfio Gliozzo

Member

ALFIO GLIOZZO is currently Principal Researcher and Technical Program Manager at IBM Research. He has over 20 years of research experience in Generative AI, with a strong focus on Natural Language Processing and Knowledge Graphs. Dr. Gliozzo was a member of the Deep QA team that developed Watson, the IBM Question Answering system that defeated the Jeopardy! grand-masters in 2011. Dr. Gliozzo leads significant research efforts aimed at providing natural language access to enterprise data lakes at IBM. He has authored over 150 scientific publications and patents and has received several Outstanding Technical Achievement Awards from IBM for his contributions to the research and development of AI capabilities in IBM products. Additionally, he has taught Cognitive Computing at Columbia University for several years. Dr. Gliozzo is a member of the Association for Computing Machinery (ACM) and regularly serves on the program committees of top AI conferences, such as AAAI and IJCAI. He received his PhD in Communication Technology from the University of Trento in 2005.

Gregory F. Lawler

Member

GREGORY F. LAWLER (NAS) is the George Wells Beadle Distinguished Service Professor in Mathematics and in Statistics at the University of Chicago. He previously held professorships at Duke University and at Cornell University. His expertise is probability and stochastic processes with a particular interest in models that arise in statistical physics. He is the author of seven books (two co-authored) as well as numerous papers. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. His awards include the Wolf Prize in mathematics (2019), the Polya Prize given by SIAM (2006), and he was a plenary speaker at the International Congress of Mathematicians (2018). He is a fellow of both the Institute for Mathematical Statistics and the American Mathematical Society. He received a B.A. from the University of Virginia in 1976 and a Ph.D. from Princeton University in 1979.

Anna Lysyanskaya

Member

ANNA LYSYANSKAYA is the James A. and Julie N. Brown Professor of Computer Science at Brown University, which she joined in 2002 after receiving her Ph.D. from MIT. A theme of her academic research is on balancing privacy with accountability, and specifically allowing users to prove that they are authorized even while not revealing any additional information about themselves. Professor Lysyanskaya is a recipient of numerous awards from the National Science Foundation, as well as industry grants from IBM, Google, and Facebook. She has served on the Board of Directors of the International Association for Cryptologic Research (IACR) since 2012 and served as Program co-chair of the annual Crypto conference in 2023.

Charif Mahmoudi

Member

CHARIF MAHMOUDI is currently a Senior Security Architect at Siemens Technology and an Associate Researcher at both the Telecommunications and Multimedia Laboratory at the University of Hassan II Casablanca and the Algorithmic Complexity and Logic Laboratory at Paris-Est Créteil University. Previously, he has held various positions in research and development, focusing on emerging networking technologies, mobile cloud computing, and software architecture. Dr. Mahmoudi is an expert in distributed systems, cybersecurity, artificial intelligence, and cloud computing, with a particular emphasis on securing cyber-physical systems and intelligent systems design. He has been recognized as a Distinguished Lecturer at both the University of North Texas and the Hassan II University of Casablanca and was a finalist for the Siemens Excellence Award. Additionally, he has served as an Associate of the Year at the National Institute of Standards and Technology. Dr. Mahmoudi obtained his Ph.D. in Formal Verification of Distributed Systems from Paris-Est Créteil University, an M.S. in Distributed Systems from Paris 12 University, and a B.S. in Computer Science from École Supérieure d'Ingénierie en Sciences Appliquées. His doctoral research focused on the orchestration of mobile agents in communities. Notably, Dr. Mahmoudi has contributed to several research and industrial projects funded by organizations like DARPA and Siemens and has a robust record of publications in the field of distributed systems and cybersecurity. His professional service includes roles as a co-chair and technical program committee member for various IEEE conferences, and he has an extensive history of invited presentations and lectures at international conferences and universities.

Linda R. Petzold

Member

LINDA R. PETZOLD is currently Distinguished Professor in the Department of Mechanical Engineering and the Department of Computer Science, and Director of the Computational Science and Engineering Graduate Emphasis at the University of California Santa Barbara. She is a member of the US National Academy of Sciences and the US National Academy of Engineering, and a Fellow of ACM, ASME, SIAM and AAAS. She was named the UCSB Faculty Research Lecturer for 2011, was awarded the SIAM/ACM Prize for Computational Science and Engineering in 2013, received an Honorary Doctorate from Uppsala University in 2015, was awarded the SIAM Prize for Distinguished Service in 2016, and was awarded the IEEE Sydney Fernbach Prize in 2018. Her current research focuses on modeling, simulation and data analytics of multiscale systems in biology and medicine.

Manas Rachh

Member

MANAS RACHH is currently a research scientist in Flatiron Institute's Center for Computational Mathematics. Before coming to the Flatiron, Manas was a Gibbs Assistant Professor in Applied Mathematics. His research interests include partial differential equations (PDEs) arising in mathematical physics, integral equation methods, robust computation of eigenvalues and eigenfunctions of elliptic PDEs, and the development of fast algorithms for applications in electrostatics, acoustics, viscous flow, electromagnetics, biomedical imaging, and data visualization. He obtained his B.Tech and M.Tech in Aerospace Engineering from the Indian Institute of Technology Bombay in 2011, and his Ph.D. from the Courant Institute of Mathematical Sciences at New York University in 2015. Manas is an organizer of a week-long workshop at Flatiron Institute entitled, "Computational Tools for PDEs with Complicated Geometries and Interfaces". The workshop is geared towards graduate students, postdocs, and practitioners, and will include introductory talks on the basic mathematical foundation of integral equation methods, illustrations of their use in applications, and offer expert-run hands-on tutorials using a set of efficient software tools.

Jeyavijayan Rejendran

Member

JEYAVIJAYAN (JV) RAJENDRAN is an Associate Professor and an ASCEND Fellow in the Department of Electrical and Computer Engineering at Texas A&M University. He obtained his Ph.D. degree from New York University in August 2015. His research interests include hardware security and computer security. His research has won the NSF CAREER Award in 2017, ONR Young Investigator Award in 2022, the IEEE CEDA Ernest Kuh Early Career Award in 2021, the ACM SIGDA Outstanding Young Faculty Award in 2019, the Intel Academic Leadership Award, the ACM SIGDA Outstanding Ph.D. Dissertation Award in 2017, and the Alexander Hessel Award for the Best Ph.D. Dissertation in the Electrical and Computer Engineering Department at NYU in 2016 and several best student paper awards. He organizes and has co-founded Hack@DAC, a student security competition co-located with DAC, and SUSHI.

Deborah Shands

Member

DEBORAH SHANDS is currently a senior computer scientist at SRI. Before joining SRI, she served as a Program Director for the National Science Foundation’s (NSF) Secure and Trustworthy Cyberspace (SaTC) program. Prior to NSF, she worked as a senior security engineer for space systems at The Aerospace Corporation. She has expertise in systems security architecture and design, and scalable security administration of identity and access management. Her current work focuses on cybersecurity and privacy for digital credentials and identities. She is a member of the Association for Computing Machinery (ACM) and is a recipient of a Distinguished Alumni Award from The Ohio State University College of Engineering and an IEEE Computer Society Outstanding Contribution Award for exemplary service. Dr. Shands received her B.S. degrees in Mathematics and Computer Science from the University of Minnesota and her Ph.D. in Computer and Information Science from The Ohio State University in 1994.

Eugene H. Spafford

Member

EUGENE H. SPAFFORD is currently a professor at Purdue University, as well as the Executive Director Emeritus of the Center for Education and Research in Information Assurance and Security (CERIAS). He has courtesy appointments in Electrical and Computer Engineering, Political Science, Philosophy, and Communication. He has been on the faculty at Purdue for 37 years. Spaf (as he is widely known) has worked on issues in privacy, public policy, law enforcement, software engineering, education, social networks, operating systems, and cyber security. He has been involved in the development of fundamental technologies in intrusion detection, incident response, firewalls, integrity management, and forensic investigation. He is a Fellow of the American Academy of Arts and Sciences (AAA&S), and the Association for the Advancement of Science (AAAS); a Life Fellow of the ACM, the IEEE, and the (ISC)2; a Life Distinguished Fellow of the ISSA; and a member of the Cyber Security Hall of Fame — the only person to ever hold all these distinctions. In 2012 he was named one of Purdue's inaugural Morrill Professors — the university's highest award for the combination of scholarship, teaching, and service. In 2016, he received the State of Indiana's highest civilian honor by being named as a Sagamore of the Wabash. Spaf received his B.S. degree from the State University of New York at Brockport, and his M.S. and Ph.D. degrees from Georgia Tech. He then spent 18 months as a postdoctoral researcher in software engineering at Georgia Tech before joining the faculty at Purdue. He previously service on the Academy’s Review Panel of the Information Technology Laboratory at NIST in 2018.

Shengtao Wang

Member

SHENGTAO WANG is currently the Head of Quantum Algorithms & Applications at QuEra Computing Inc., which is a leader in commercializing quantum computers using neutral atoms. Dr. Wang is an expert in the development of near-term quantum algorithms and applications, in the areas of quantum optimization, quantum simulation, and quantum machine learning. He has more than 12 years of experience working in the field of quantum computing and quantum simulations. At QuEra, Dr. Wang leads a team of more than 10 senior scientists and engineers and has mentored more than 20 student interns as part of his team in the past 5 years. Prior to his position at QuEra, Dr. Wang was a postdoctoral scholar at the department of Physics at Harvard University, during which he made important contributions in developing near-term quantum optimization algorithms implementable on today's neutral-atom quantum computers. Dr. Wang received his B.Sc. in 2011, double majoring in Physics & Mathematics, at Nanyang Technological University in Singapore and won the Top CN Yang Scholar Award. He received his PhD in Physics at the University of Michigan – Ann Abor in 2017 and won the Wirt and Mary Cornwell Prize. Dr. Wang currently receives funding from DARPA, NERSC, and Wellcome Leap.

Tolga Yalcin

Member

TOLGA YALCIN is currently a CPU Security Architect at Qualcomm Inc., San Diego, CA. He has expertise in embedded and hardware security, applied cryptography, DSP and ASIC design. Dr. Yalcin received his Ph.D. in Microelectronics and Microsystems from Swiss Federal Institute of Technology Lausanne (EPFL) in 2007. Before joining Qualcomm in 2022, he worked for NXP, Northern Arizona University (as a research professor) and Google. He is a member of IEEE and has served as a PC member and reviewer for major several conferences and journals in his area of expertise.

Sherali Zeadally

Member

SHERALI ZEADALLY is a University Research Professor and the University of Kentucky Alumni Association Endowed Professor at the University of Kentucky. He authored/co-authored over 500 peer-reviewed publications out of which 371 papers have appeared in peer-reviewed international journals/magazines. This also includes 40 peer-reviewed book chapters. He has authored/co-edited 8 books. He has received 13 best paper awards with 11 of them from well-known peer-reviewed international journals. He was named a Highly Cited Researcher in Computer Science for the past years (2020, 2021, 2022, 2023) by Clarivate. He received more than 60 awards/honors/prestigious fellowships nationally and internationally for his outstanding research, teaching, and service in his career. Sherali Zeadally has received several outstanding research awards from the University of Kentucky, nationally, and internationally. At the University of Kentucky, he won several University-wide awards which include the University Research Professor Award, the Albert D. & Elizabeth H. Kirwan Memorial Prize, the Alumni Professorship Award, the Global Impact Award for Distinguished Faculty Achievements in International Research and Scholarship, the Excellent Undergraduate Research Mentor Award, and the Ken Freedman Outstanding Faculty Advisor Award. At the national level, he won the prestigious IEEE Region 3 Outstanding Engineer Award and the IEEE-USA George F. McClure Citation of Honor. At the international level, he received the prestigious Communications Software Technical Achievement Award from the IEEE Communications Society Communications Software Technical Committee in 2015 and the IEEE Smart Computing Special Technical Community (SCSTC) Life-Career Award in 2023. He has also received several research mentor and advising awards (all of them nominated by undergraduate and graduate students) from the University of Kentucky for his outstanding mentoring and advising efforts. He received multiple outstanding teaching awards (two excellence in teaching awards, President’s award for excellence in teaching, Great Teacher Award) for his excellent teaching at both undergraduate and graduate levels. Sherali Zeadally has made numerous service contributions (as editor-in-chief of an international peer-reviewed journal, associate editor/editorial board member of over 15 peer-reviewed academic journals, a Chair/Co-Chair/technical program committee member of several peer-reviewed conferences, a grant reviewer for over 40 grant funding agencies nationally and internationally. Sherali Zeadally earned his bachelor’s degree in computer science from the University of Cambridge, England. He also received a doctoral degree in computer science from the University of Buckingham, England, followed by postdoctoral research at the University of Southern California, Los Angeles, CA. His research interests include cybersecurity, privacy, Internet of Things and computer networks (vehicular networks and sensor networks).

Mary Ellen Zurko

Member

MARY ELLEN ZURKO is a technical staff member at the Massachusetts Institute of Technology (MIT) Lincoln Laboratory. She has worked in product development, early product prototyping, and research and has more than 20 patents. She defined the field of user-centered security in 1996, and has worked in cybersecurity for over 35 years. She was the security architect of one of IBM’s earliest clouds. She was a founding member of the National Academies’ Forum on Cyber Resilience and serves as a Distinguished Expert for NSA’s Best Scientific Cybersecurity Research Paper competition. Her research interests include unusable security for attackers, Zero Trust architectures for government systems, security development and code security, authorization policies, high-assurance virtual machine monitors, the web, and PKI. Zurko received a S.B. and S.M. in computer science from MIT. She has been the only “Mary Ellen Zurko” on the web for over 25 years.