PANEL: FM@Scale Workshop Summary

Two workshops were convened in 2019 on the topic of Formal Methods at Scale. Participants from U.S. industry, government, and academia gathered to discuss recent advances in the application of formal methods at scale and prospects for the future. The workshops showcased excitement in the community regarding the advances in formal methods technology, the scale of existing applications, and potential for a new and broader scope for formal methods applications. Specific topics discussed included improvements in tools, practices, and training and characteristics of existing and emerging applications.

Patrick Lincoln, Ph.D., is Vice President of Information and Computing Sciences, and director of the Computer Science Laboratory (CSL) at SRI International. Lincoln leads research in the fields of formal methods, computer security and privacy, computational biology, scalable distributed systems, and collaborative interfaces. He has led multidisciplinary groups conducting high-impact research projects in symbolic systems biology, scalable anomaly detection, exquisitely sensitive biosensor systems, strategic reasoning and game theory, and privacy-preserving data sharing. He has published dozens of influential papers, holds several patents, has served on scientific advisory boards for private and publicly held companies, nonprofits, and government agencies and departments. Lincoln holds a Ph.D. in computer science from Stanford University and a B.Sc. in computer science from MIT. He has previously held positions at MCC, Los Alamos National Laboratory, and ETA Systems. Patrick was named an SRI Fellow in 2005.

Brad Martin serves as the technical director within NSA's Laboratory for Advanced Cybersecurity Research, the U.S. government's premier cybersecurity research and design center; focused on conducting and sponsoring collaborative research in the technologies and techniques which will secure America's information systems of tomorrow. Mr. Martin has a strong history in building communities in the area of high confidence software and systems research and development, as well as having initiated research groups at NSA supporting development of supporting scientific foundations and technologies. Mr. Martin serves as Co-Chair of the Networking and Information Technology Research and Development (NITRD) Program's Computing-Enabled Networked Physical Systems (CNPS) Interagency Working Group (IWG). The CNPS IWG coordinates Federal R&D to advance and assure information technology-enabled systems that integrate the cyber/information, physical, and human elements. Additionally, Mr. Martin previously served as the Chair of the Special Cyber Operations Research and Engineering (SCORE) Subcommittee, a Subcommittee of the NSTC Committee on Homeland & National Security. The SCORE Subcommittee is focused on enhancing coordination and collaboration across the cyber research community, and specifically scoped for science and technology for national security needs in cyber.

Dr. William Scherlis assumed the role of office director for DARPA's Information Innovation Office (I2O) in September 2019. In this role he leads program managers in the development of programs, technologies, and capabilities to ensure information advantage for the United States and its allies, and coordinates this work across the Department of Defense and U.S. government. Scherlis joined DARPA from Carnegie Mellon University (CMU), where he is a professor of computer science. He served for 12 years as director of CMU's Institute for Software Research (ISR), overseeing research and educational programs related to software development, cybersecurity, privacy engineering, Internet of Things, network analysis, mobility, systems assurance, and other topics. During 2012 and early 2013 he was the acting chief technology officer for the Software Engineering Institute, a Department of Defense FFRDC at CMU. Scherlis has led multiple national studies including the National Research Council study committee that
produced the report "Critical Code: Software Producibility for Defense" in 2010. He also served multiple terms as a member of DARPA's Information Science and Technology Study Group. He has been an advisor to major technology firms, defense companies, and venture investors, and has served as program chair for a number of technical conferences including the ACM Foundations of Software Engineering Symposium and the ACM Symposium on Partial Evaluation and Program Manipulation. He is a fellow of the IEEE and a Lifetime National Associate of the National Academy of Sciences.

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