



# Verification and Validation Summit 2020

September 23-24, 2020

## Speaker Biographies

**Mark DeNicuolo** is the Deputy Vice President of the Program Management Organization (PMO) within the Air Traffic Organization (ATO). The PMO provides program and acquisition management for the FAA infrastructure programs that transform, modernize and sustain the National Airspace System (NAS), including Air Traffic Operations, Mission Support Systems and Business support systems.

The PMO also holds responsibility for service life extensions to legacy NAS sensors, communications and navigation aids. Given the tight coupling between successful automation program delivery and current system operation, the PMO also leads and manages second-level automation engineering efforts. Lastly, the PMO works with FAA operations and aviation users to ensure globally interoperable NextGen solutions.

Previously Mark served as the Director of Safety, where he was responsible for ensuring NAS safety through reporting, mitigating and monitoring risk. This included establishing the ATO's policies on runway safety, Safety Management Systems, voluntary safety reporting programs, safety promotion, quality assurance and quality control. Under his leadership, the directorate would convert safety and quality data into actionable information to identify trends and risks in the airspace, provide high-level oversight of investigations and establish policy on independent verification and validation of safety issues and incidents. In this role, Mark also served as a key FAA representative on air traffic safety issues with global safety organizations, interagency/industry committees and employee unions.

Mark has also served as the Director of Policy and Performance. In that role, he served as the steward of the ATO's safety data and Safety Management System. Under his leadership, the directorate ensured that national safety management policies were clearly defined, communicated and followed. The directorate was responsible for audits and operational assessments of air traffic operations, technical operations, NAS changes and new technologies, and also provided safety analyses and data management capabilities. Additionally, the directorate served as the ATO's international focal point for safety activities related to Air Navigation Service provision, as well as for safety analyses related to new entrants into the NAS, such as commercial space launches and unmanned aircraft systems.

Mark has been with the FAA for 28 years and holds a Bachelor of Science degree in Electrical Engineering from Drexel University.



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**Dionisio de Niz, Ph.D.** is a Principal Researcher and the Technical Director of the Assuring Cyber-Physical Systems directorate at the Software Engineering Institute at Carnegie Mellon University. He received a Master of Science in Information Networking from the Information Networking Institute and a Ph.D. in Electrical and Computer Engineering, both from Carnegie Mellon University. His research interests include Cyber-Physical Systems (CPS), Real-Time Systems, Model-Based Engineering, and Security of CPS. In the real-time arena, he has recently focused on multicore processors and mixed-criticality scheduling and more recently in real-time mixed-trust computing. Dr. de Niz co-edited and co-authored the book *Cyber-Physical Systems* where the authors discuss different application areas of CPS and the different foundational domains including real-time scheduling, logical verification, and CPS security.

**George Emilio** is Director of Aviation Research at Serco, Inc., an internationally recognized Air Navigation Service Provider providing worldwide Air Traffic Control services, including tower services at 59 airports in the US. George is a professional pilot with over 25 years of global flying experience in numerous aircraft. He has been Chief Pilot for a Fortune 500 company and pilot-in-command to senior government officials including the Vice President and First Lady. His research focuses on aviation decision-making and risk management under operational complexity.

**Jaime Figueroa** is the Deputy Director of the Federal Aviation Administration's (FAA's) William J. Hughes Technical Center (WJHTC) – the nation's premier federal laboratory for air transportation system research, development, test and evaluation. Mr. Figueroa was appointed to the FAA Executive Service in September 2016. In his role, he provides leadership and direction to a diverse technical and professional staff supporting innovation, modernization and sustainment of the aviation system. His responsibilities include management of wide ranging strategic initiatives aimed at growing the Center's capabilities and capacity to innovate and advance new aviation and air traffic management technologies. Strategic focus on WJHTC workforce development/engagement, laboratory/technology evolution and new partnership development are some of Mr. Figueroa's leadership pursuits in his current role.

In his previous assignment, Mr. Figueroa led the Research and Development Management Division, and in that role worked across FAA business units to shape, coordinate and communicate the agency's R&D investment portfolio. Prior to that, he directed the NextGen Management



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Services Office, and in that capacity led a multidisciplinary federal staff in providing the FAA's NextGen Office wide ranging mission support services including budget, procurement, and human capital management.

During his 25 years with the FAA, Mr. Figueroa has led a wide array of air traffic management and mission support research and acquisition programs. His past assignments include leadership of the Aviation Weather Research organization and the Runway Incursion Reduction Program (RIRP) Technology Development Group. His work on the RIRP led to the development of new runway safety technologies, some of which have been operationally deployed in the NAS and adopted internationally.

Mr. Figueroa began his civil service career in 1984 with the Department of Defense where he performed as a test engineer on aircraft weapon system programs. He also served as a system engineer responsible for developing simulation models to support surface ship combat system engineering and performance analyses.

Mr. Figueroa holds a Bachelor's degree in Electrical Engineering from the University of Puerto Rico and a Master degree in Information Technology from the University of Maryland University College. He successfully completed the Advanced Management Program and obtained a Chief Information Officer certification from the National Defense University, Information Resource Management College.

**John Frederick** is a graduate from Drexel University (Philadelphia) with a BS in Computer Systems Management. Mr. Frederick has over 34 years of Test and Evaluation (T&E) experience with Federal Aviation Administration (FAA) systems. In the early part of his career, as both a support contractor and FAA employee, Mr. Frederick has worked as a National Airspace System (NAS) programmer, test engineer, simulations developer, and Operational Test and Evaluation (OT&E) lead on Air Traffic Control automation systems. Mr. Frederick has supported and led T&E efforts on over 12 major FAA automation programs. A large portion of his career in the FAA has been dedicated to working as an FAA Test Director and Test Program Manager on major FAA acquisitions of En Route Air Traffic Control (ATC) automation systems. As Chief Test Engineer and Subject Matter Expert (SME), Mr. Frederick has consulted with the Department of Defense (DOD) and international agencies on T&E and provided guidance on FAA investment programs.



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He has served as the Test Standards Board Chairman to establish test standards in the FAA and provide quality T&E oversight for the agency. Mr. Frederick is currently leading the way for quality verification and validation methods and standards in the FAA as the Manager for the Verification and Validation Strategies and Practices Branch at the FAA William J. Hughes Technical Center. Each year Mr. Frederick conducts the annual Verification and Validation (V&V) Summit, which he started in 2006. At the V&V Summit, he gathers speakers and participants from across the FAA, other government organizations, industry, and academia to address innovative methods for complex problems and to promote a quality V&V culture. He is also the International Test and Evaluation Association (ITEA) South Jersey Chapter President and serves as the T&E representative for the FAA on the Acquisition System Advisory Group and Joint Resources Council. John Frederick is a graduate of the Federal Executives Institute with a Certificate of Mastery in Leadership for a Democratic Society.

**Erik Hollnagel** was born in Copenhagen, Denmark. He holds a M.Sc. in psychology from the University of Copenhagen, and a Ph.D. in psychology from the University of Aarhus (Denmark). Erik Hollnagel is presently Senior Professor of Patient Safety at the University of Jönköping, Sweden. Erik is Professor Emeritus, University of Linköping (Sweden), Ecole des Mines de Paris (France), and University of Southern Denmark. He is an internationally recognized specialist in the fields of resilience engineering, system safety, human reliability analysis, cognitive systems engineering, and intelligent man-machine systems. Erik has been a member of the Scientific Committee of the SESAR Joint Undertaking, member of the Risk Commission of the Danish Academy of Technical Sciences (1986-1989), Representative (International Region) in the Council of the Association of Computing Machinery (ACM) (1994 - 1997), President of the European Association of Cognitive Ergonomics (1994-2000), and member of the Swedish Reactor Safety Council (1996-2002). He is also co-founder and past President of the Resilience Engineering Association.

Erik is the author of more than 500 publications including 29 books, articles from recognized journals, conference papers, and reports. Erik's books include *FRAM: The Functional Resonance Analysis Method: Modelling Complex Socio-technical Systems* (2012), *Safety-I and Safety-II: The Past and Future of Safety Management* (2014), and *The ETTO Principle: Efficiency-Thoroughness Trade-Off: Why Things That Go Right Sometimes Go Wrong* (2018).



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**Jennafer Miller** is the Principal of Community Engagement at Evans Consulting in Falls Church, Virginia, and began her engagement with the FAA in 2015. She has over 25 years of combined experience as an administrator, program manager, and educator, in both traditional and experiential environments, and has a personal and professional commitment to working to effect positive change. She has facilitated and delivered workshops and training in a variety of settings, and she has been recognized for her incorporation of innovative methods and materials. She has also worked with organizations to address needs in order to grow their businesses and advance their missions.

In her work with the FAA, she has supported a variety of programs and initiatives in the FAA's Program Management Office (PMO) and Air Traffic Operations (ATO) Systems Operations Operational Readiness (AJR-X). She worked with the PMO Requirements Management Board (PRMB) and co-developed the Requirements Management (RqM) workshops and overviews. She also co-developed an ongoing series, TEAM Talks, which are given by PMO leaders, employees from other FAA organizations, and industry partners. She has worked with FAA programs on drafting program governance documents, facilitation, and communications and outreach.

Jennafer has her BA from Duke University and her MA in Teaching English to Speakers of Other Languages (TESOL) from Columbia University Teachers College. She is also a Project Management Professional (PMP), a Life Member of the Bethesda-Chevy Chase Rescue Squad (BCCRS), where she was an active volunteer as an EMT-B and first-string emergency driver of ambulances and medic units, and a CPR and First Aid instructor with the National Safety Council.

**Angela Moore** is an internationally certified Lean/Six Sigma Master Black Belt (LSSMBB) – a quality sensei – as well as a USDA-credentialed Government Auditor with more than 25 years of financial and process auditing experience supporting the FAA. She was integral to the team that conducted internal audits resulting in the FAA's removal from the GAO High Risk List and led subsequent Sarbanes-Oxley oversight audits for the Agency's Internal Controls Division. Leveraging her knowledge in Total Quality Management™, International Organization for Standardization, and Capability Maturity Model™, she was matrixed to the team that standardized the FAA's Continuous Improvement process nationwide. Locally, her audits have positively affected the sustainment of ISO certificates at the Technical Center. Her work includes cradle-to-



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grave analysis and reengineering of the processes and policies affecting the National Airspace System, Mission Support, and the Acquisition Management System. She currently works for Engineering Information Technology (EIT), Inc. supporting the V&V Strategies and Practices Branch as a Configuration Management Professional (CCMP).

Building her career from a 200-line receptionist for an EnRoute software company to her role today enabled her to learn in various fields but to find commonalities. She is versed in acquisition systems development as well as many disciplines that support program success such as Requirements Management, Metrics, National Industrial Security Program, Data/Information Management, Supply Chain, and Knowledge Management. A natural teacher, Moore shares her knowledge through adjunct teaching, authorship, mentorship, and even has trademarked her technical editing method. Moore has been published in *CM Crossroads*, a trade publication for Configuration Management (CM) and DevOps.

Her former career in entertainment as Angela Harris included that as a cable television producer, a writer, a media personality, and a news director for a middle-market radio station. She enjoys world travel, language, the arts, and puzzles. Moore is a proud Duke University alumna (AB, English) and postgraduate of Villanova University. However, she is prouder to be mother to Alexander and Jacqueline, twins who just became high school freshmen this year.

**Christopher P. Nemeth** is a Principal Scientist and Leader of the Cognitive Solutions Group of Applied Research Associates, Inc. Recent research includes technical work in complex high stakes settings, research methods in individual and distributed cognition, and understanding how information technology erodes or enhances system resilience. His academic career has included adjunct positions with Northwestern University's McCormick College of Engineering and Applied Sciences (Associate Professor), and Illinois Institute of Technology. He is a Fellow of the Design Research Society, a Life Senior Member of the Institute of Electrical and Electronic Engineers, served 8 years as a member of the Board of Governors of the IEEE Systems, Man and Cybernetics Society, and is Co-Founder and Past Chair of the National Defense Industry Association's Human Systems Division. He has served as a committee member of the National Academy of Sciences, and is widely published in technical journals.



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Chris's books include *Human Factors Methods for Design* (2004), *Resilience Engineering Perspectives, Volume 1: Remaining Sensitive to the Possibility of Failure* (2008), *Volume 2: Preparation and Restoration* (2009), and *Resilience Engineering in Practice Volume 2: Becoming Resilient* (2014).

**Colonel Steven Speares** serves as the Chief, Air Force Test and Evaluation Policy, Programs, and Resources Division on the United States Air Force Headquarters Staff at the Pentagon, Washington D.C. His division is responsible for developing, updating, and promulgating Air Force Test and Evaluation policy and guidance, overseeing all Air Force T&E activities in support of acquisition, acting as the Air Force office of primary responsibility for the OSD Joint T&E program, and performing all program element monitor responsibilities for seven test and evaluation infrastructure and support program elements totaling over \$1 billion dollars annually.

Col. Speares was commissioned in 1999 as a distinguished graduate of the United States Air Force Academy, earning an undergraduate degree in Astronautical Engineering. He flew the F-15E at Seymour Johnson AFB, North Carolina, where he served as a flight lead and conducted combat operations in support of Operations SOUTHERN WATCH and IRAQI FREEDOM. Col. Speares then graduated from the Air Force Institute of Technology and the USAF Test Pilot School (TPS), earning Master of Science degrees in Aeronautical Engineering and in Flight Test Engineering.

Following TPS, he was assigned to the 445<sup>th</sup> Flight Test Squadron (FLTS) at Edwards AFB, California, as an Experimental Test Pilot conducting air data and avionics testing in the F-16 and T-38. He was chosen for the initial group of F-35 test pilots in the 461<sup>st</sup> FLTS, where he was lead pilot for both mission systems and air start testing. At Eglin AFB, Florida, he served as Director of Operations and then Commander of the Operational Flight Program Combined Test Force, a squadron responsible for the management of both F-15C and F-15E Developmental and Operational Test. In his following command, he was Deputy of the F-35 System Management Office at Headquarters Air Combat Command. Col. Speares then attended the US Naval War College in Newport, Rhode Island, where he was selected as an Arleigh Burke Fellow of the Naval Command College. Upon graduation from Naval War College, he was assigned to Headquarters Air Force Test and Evaluation.



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Col. Speares is a Command Pilot with more than 2,000 flight hours in over 35 aircraft and has flown 200+ combat hours in the F-15E.

**Suzanne S. Styc, PMP** is currently the Acting Director of the Management Services Office in the Office of NextGen. She provides the day-to-day direction, oversight and leadership of a complex organization of approximately 100 employees accountable for a variety of critical financial, contract, and support functions for the Office of NextGen. Prior to joining NextGen, Suzanne served as the Deputy Director of Financial Services in the Air Traffic Organization.

Suzanne demonstrated her leadership skills while on detail to Mission Support Services. As the Deputy Director for Airspace Services, Suzanne led the Directorate through challenges of responding to community involvement and public engagement while addressing needs of both legacy and performance based navigation activities. She streamlined processes and implemented cross-organizational efforts through extensive interaction with stakeholders such as the Western Pacific Regional Administrator, Operations Support Groups, Noise Steering Groups, and the Noise Operations Forum. Suzanne led technical shared services in her role as the Acting Director of the Western Service Center. She headed the Service Center to provide quality services and products while routinely interacting with the Airport Line of Business, the Department of Defense, local and national law enforcement, and members of Congress.

Suzanne served as the Senior Advisor for Vice President of System Operations Services. She provided advice and counsel to the Vice President, Deputy Vice President, and operational staff on tactical and strategic issues. She interfaced with stakeholders including all major airlines, business, and general aviation users of the National Airspace System (NAS). She routinely applied her knowledge of current agency issues, National Airspace operations, budget and contract matters, as well as hiring practices for the service unit.

She also acted as the Group Manager for Communications, Information and Network Programs. In this position, she managed the operations for several key transformational programs in the National Airspace such as the FAA Telecommunications Infrastructure, System Wide Information Management, Alaskan Satellite Telecommunication, and NAS Voice System. She provided leadership for Enterprise Programs during a major reorganization.



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Suzanne has held management positions in telecommunications, communications, finance, contracting, and is a certified Program Management Professional. She is especially adept in understanding the Federal budgetary process and acquisition practices. She has defended budget requests across all service units in the Air Traffic Organization (ATO) as a key member of the Operations Review Board (ORB) and has served as ORB Chairperson. Notably, Styc was recognized for her contributions to the ORB receiving the NAS First People Always award for Outstanding Stewardship and Customer Service. She is originally from Ohio where she graduated from Ohio University with a Bachelor's of Science degree in telecommunications engineering. She now lives in Alexandria Virginia with her husband.

**Pamela Whitley** is the Acting Assistant Administrator for NextGen and is responsible for championing the evolution of the National Airspace System (NAS). She provides strategic direction and executive oversight to more than 800 federal employees in the Office of NextGen (ANG) and manages an approximately \$2 billion federal budget. Ms. Whitley has experience heading large-scale, complex initiatives, demonstrating the ability to lead at all levels and to help build leaders along the way.

She has held several positions related to delivering the Next Generation Air Transportation System (NextGen), including Director of the NextGen Integration and Implementation Office. In 2011, ANG's responsibilities were expanded to include planning for the entire NAS. As a result, she became responsible for providing leadership to help meet the organization's new goals. While Ms. Whitley has spent most of her career with the FAA, she has completed detail assignments at the Federal Motor Carrier Safety Administration and at the Pipeline and Hazardous Material Administration.

Ms. Whitley's FAA career began in 1993 as an electrical engineer responsible for the development of standards for airport electrical equipment and lighting. She has held positions in the Airway Support Facilities Division, the Office of Technology Development, and the NextGen Integration and Implementation Office. Ms. Whitley has extensive experience working with the Department of Transportation, the Office of Management and Budget, and Congress. Her early contributions to NextGen helped sustain a long-term funding profile for NAS Modernization. As a result, the FAA has continued to invest in key programs and research activities that are modernizing today's NAS.



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Ms. Whitley is the recipient of several prestigious FAA awards, including a 2008 ATO Executive Council Leadership Award for her contribution to establishing a portfolio management framework for NextGen. She also received the FAA Administrator's Award for Environmental Excellence in 2005, and has been recognized for her leadership on various technology development initiatives.

A graduate of Southern University in Baton Rouge, Louisiana, Ms. Whitley earned a Bachelor of Science Degree in Electrical Engineering. Her professional career as an electrical engineer began with the Tennessee Valley Authority. She later served as an engineering consultant to the Washington Suburban Sanitary Commission.

**David Woods** For over 40 years David Woods, Professor of Integrated Systems Engineering at the Ohio State University, has improved systems safety in high-risk complex settings across aviation, nuclear power, critical care medicine, crisis response, military operations, and space operations. He helped launch Resilience Engineering on the dangers of brittle systems and the need to invest in sustaining sources of resilience beginning in 2000-2003 as part of the response to several NASA mishaps and as an advisor to the Columbia Accident Investigation Board. He frequently advises government agencies on safety, technology and human performance including the FAA Human Factors and Cockpit Automation Team (1996; and its reprise in 2013), the Defense Science Board Task Force on Autonomy (2012), US National Research Council on Dependable Software (2006), and on Autonomy in Civil Aviation (2014)

His books include *Behind Human Error* (1994/2010 2nd edition) and *Resilience Engineering* (2006). His awards include the Laurels Award from Aviation Week and Space Technology (1995), Google Faculty Award (2008), and the Jimmy Doolittle Fellow Award from the Air Force Association (2012).