Verification and Validation Summit 2021

September 29–30, 2021

Speaker Biographies

John Bradley is an Air Traffic Control Specialist who transferred to the FAA's William J. Hughes Technical Center in 2014 to provide subject matter expertise in the Air to Ground Communications Branch. He worked on the Data Communications program and supported several Human-In-The-Loop (HITL) simulations regarding Unmanned Aircraft Systems (UAS) integration into the National Airspace System (NAS). Most recently, Mr. Bradley worked as part of a team creating the Atlantic City Advanced Air Mobility (AAM) Ecosystem use case. The use case helps integrate laboratory assets and is expected to be useful in researching new emerging NAS entrants such as electric vertical takeoff and landing (eVTOL) aircraft.

Mr. Bradley joined the FAA in 1986 as an Air Traffic co-op at Greater Pittsburgh Air Traffic Control Tower (ATCT). He successfully completed the Air Traffic Screen in Oklahoma City in 1988 and reported to Atlantic City ATCT as his first duty assignment. He became a certified professional controller (CPC) at Atlantic City ATCT and held several positions during his 26 years at the facility, including Quality Assurance and Training Specialist (QATS), Plans and Procedures Specialist (PPS), Front Line Manager (FLM), and Air Traffic Manager (ATM) for the last 4 years.

Mr. Bradley received an associate's degree in air traffic control from the Community College of Beaver County in 1985, and a bachelor's degree in business administration from Robert Morris University in 1988. He is a private pilot with a single engine land and seaplane rating. He also holds a sUAS Remote Pilot certificate.

Justin F. Brunelle, Ph.D. is a Principal Researcher in the MITRE Corporation's Software Engineering Innovation Center. At MITRE, he conducts research in emerging technologies with a focus on web crawling and technology-driven innovation.

Dr. Brunelle is a recognized and award-winning expert in both government innovation and web crawler research. He also guides research and development within MITRE's Software Engineering Innovation Center, assuring research quality, execution, and success for the Innovation Center's 500-plus employees.

Dr. Brunelle holds a Ph.D. in Computer Science from Old Dominion University where his research focused on web science and information retrieval.

Anita Carleton is an Executive Leadership Team Member and Division Director of the Software Solutions Division (SSD) at the Carnegie Mellon University Software Engineering Institute (SEI) where she has more than 30 years of technical and senior leadership experience in the software engineering industry. The mission of SSD is to advance the state of the practice in software engineering through applied research, development, and transition of innovative technologies

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for building and acquiring software-intensive systems, with the specific goal of making software a strategic advantage for the Department of Defense (DOD).

Ms. Carleton has leadership and operating responsibility for a diverse staff of more than 160 researchers, expert developers, and domain experts advancing software engineering through a $55 million research and development portfolio. She leads the software engineering research, development, and transition strategy for the SEI and its work with government, industry, and academia to develop and adapt software technologies, software analyses, and data analytics for the measurable benefit of the U.S. Government. Ms. Carleton is currently leading an SEI effort to engage the broad software engineering community to define a national agenda for software engineering research and development for the next decade.

In her previous position as Director of the SEI Software Engineering Process Management Program, Ms. Carleton managed the SEI's software development and measurement initiatives, which included Capability Maturity Model Integration (CMMI) and Team Software Process (TSP), methods designed to yield high-quality software and high-performance teams. These models and measurement practices have been used throughout the software industry worldwide. In 2012, she provided technical leadership for the successful spinout of the CMMI product suite to the CMMI Institute, a subsidiary of Carnegie Innovations, Carnegie Mellon University's technology commercialization enterprise. Her seminal research in applying statistical process control techniques to the U.S. Space Shuttle software data led to Carleton's co-authored book, *Measuring the Software Process: Statistical Process Control for Software Process Improvement*, published by Addison Wesley.

Before joining the SEI, Ms. Carleton held technical and management positions in the industry. At GTE Government Systems in Massachusetts, she designed, developed, and tested software for the Minuteman and Peacekeeper Missile Systems. At the Goodyear Tech Center in Ohio, she was the lead systems modeling and simulation engineer responsible for conducting tire tread studies using experimental design and statistical analysis techniques.

Ms. Carleton received her bachelor's degree in Applied Mathematics from Carnegie Mellon University and her MBA from the MIT Sloan School of Management. She serves on the IEEE Software Advisory Board and is a senior member of the IEEE Computer Society. She recently served as guest editor for two IEEE Software Special Issues: "The Future of Software Engineering" and "The AI Effect: Working at the Intersection of Software Engineering and Artificial Intelligence." She is the recipient of the MIT Sloan Leadership Fellowship and has received achievement awards for her work in support of U.S. Air Force programs, from the *Journal of the Quality Assurance Institute* for her leadership in software measurement, and from Dr. Barry Boehm, member of the SEI's Board of Visitors, for her leadership in defining the SEI Core

Measures and a measurement program for the DOD to facilitate data-driven decision-making. Ms. Carleton is a graduate of Leadership Pittsburgh Inc. and serves on the Board of Directors for the Boys and Girls Clubs of Western Pennsylvania.

George Emilio is Director of Aviation Research at Serco Inc., an internationally recognized air navigation service provider (ANSP) providing worldwide air traffic control (ATC) services, including tower services, at 60 airports in the United States. Mr. Emilio is a professional pilot with more than 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 of the United States and First Lady. His research focuses on aviation decision-making and risk management under operational complexity.

John Frederick is Manager of the Verification and Validation Strategies and Practices Branch at the FAA's William J. Hughes Technical Center, where he is responsible for establishing quality verification and validation methods and standards in the FAA. He has more than 35 years of Test and Evaluation (T&E) experience with Federal Aviation Administration (FAA) systems. Since starting the annual Verification and Validation (V&V) Summit in 2006, Mr. Frederick has gathered speakers and participants from across the FAA, other government organizations, industry, and academia to address innovative methods for complex problems and promote a quality V&V culture.

In the early part of his career, as both a support contractor and FAA employee, Mr. Frederick worked as a National Airspace System (NAS) programmer, test engineer, simulations developer, and Operational Test and Evaluation (OT&E) lead on Air Traffic Control (ATC) automation systems. He has supported and led T&E efforts on more than 12 major FAA automation programs. A large portion of his career in the FAA was dedicated to working as an FAA Test Director and Test Program Manager on major FAA acquisitions of En Route 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. 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. 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.

Mr. Frederick is a graduate of Drexel University (Philadelphia) with a Bachelor of Science in Computer Systems Management. He is also a graduate of the Federal Executives Institute with a Certificate of Mastery in Leadership for a Democratic Society.

Ronald C. Keesing is the Vice President for Artificial Intelligence (AI) at Leidos, where he is responsible for developing and implementing the company's AI and Machine Learning (ML) strategy. He leads the Leidos AI Accelerator, a team of top data scientists, AI researchers, and solution architects, to address the company's most challenging problems in AI and ML.

Mr. Keesing has conducted and directed R&D in AI, ML, and related technologies for more than 25 years. He has done pioneering work on programs addressing many of the nation's toughest problems, such as forecasting complex events like cyber threats and political instability using sparse data, discovering potential cancer treatments by extracting and aligning knowledge embedded within massive datasets and research publications, and creating the first generation of autonomous systems for spacecraft command and control.

Mr. Keesing is a Leidos Technical Fellow and has authored papers and patents in diverse subfields of AI. He serves in an advisory capacity for external organizations including the Center for New American Security, where he is a member of the Task Force on Artificial Intelligence and National Security.

Daniela Kratchounova, Ph.D. is a Research Scientist at the FAA's Civil Aerospace Medical Institute (CAMI). She has more than 25 years of experience in the aviation industry, including training and instructional technology (Flight Safety International), human factors engineering (Gulfstream Aerospace), and aviation human factors R&D (Honeywell International — Advanced Technology Europe and FAA CAMI). Her research interests include aviation weather human factors (image-based visibility, pilot decision-making in adverse weather avoidance), advanced vision systems (Enhanced, Synthetic, Combined Vision Systems), head-up and head-worn displays, non-traditional multimodal controls (gaze, voice, touchless gesture, touch), and future flight deck design.

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 Government Accountability

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Office (GAO) High Risk List and led subsequent Sarbanes-Oxley oversight audits for the FAA's Internal Controls Division. Leveraging her knowledge in Total Quality Management™, International Organization for Standardization (ISO), 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 William J. Hughes Technical Center. Her work includes cradle-to-grave analysis and reengineering of the processes and policies affecting the National Airspace System, Mission Support, and the Acquisition Management System. She currently supports the Verification and Validation (V&V) Summit's host organization in its mission to strategically promote and implement robust V&V practices.

Beginning her career supporting FAA as a software-development contractor (En Route, Terminal, and Host), Ms. Moore has gained experience 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, she shares her knowledge through adjunct teaching, authorship, mentorship, and has even trademarked her technical editing method. Ms. Moore has been published in *CM Crossroads*, a trade publication for Configuration Management (CM) and DevOps. Ms. Moore carries the CM Professional (CCMP) credential.

Her former career in entertainment as Angela Harris included work 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. Ms. Moore is a proud Duke University alumna (AB, English) and postgraduate of Villanova University. However, she is prouder to be mother to teen twins, Alexander and Jacqueline.

Wendy O'Connor is responsible for operationalizing Next Generation Air Transportation System (NextGen) capabilities to achieve intended operational benefits. As the Air Traffic Services Lead for Trajectory Based Operations (TBO), Ms. O'Connor applies operational, technical, and programmatic expertise to the development and deployment of air traffic capabilities that enable TBO.

Ms. O'Connor also leads Change Management initiatives for FAA Headquarters organizations and the Air Traffic Controller workforce to gain acceptance in new ways of operating and providing

air traffic services. She collaborates with stakeholders across the community such as Air Traffic Controllers/Managers, program managers, engineers, labor personnel, airspace users, industry representatives, standards bodies, and international Air Navigation Service Providers (ANSPs), and serves as the Air Traffic Services lead for the Northeast Corridor NextGen Advisory Committee Integrated Workgroup (NIWG) and the Performance Based Navigation NIWG.

Almira Ramadani is the Trajectory Based Operations (TBO) Integration and Analysis Manager within the Air Traffic Organization's (ATO) Air Traffic Services Directorate, responsible for data-driven identification of operational opportunities and challenges in support of TBO improvements and decision-making. Her expertise is in performance analysis of current and future National Airspace System (NAS) operations, and in validation of Air Traffic Management concepts and requirements.

During her tenure at the FAA's Next Generation Air Transportation System (NextGen) Office, Ms. Ramadani led performance analyses of NextGen improvements and field evaluations, with a focus on early identification of synergies and conflicts between legacy and NextGen technologies, policies, and procedures, and on development of common statements of facts about NextGen progress agreed upon by all stakeholders. With more than 20 years of experience in academia, the private sector, and the FAA, Ms. Ramadani's expertise has been reinforced through joint efforts and collaboration with representatives from government, air traffic control, air carrier, and research organizations on local, national, and international issues associated with the introduction of new technologies and operations.

Ms. Ramadani holds an undergraduate degree in Air Transportation Engineering from the University of Belgrade, and an MS degree in Civil and Environmental Engineering from the University of California at Berkeley.

John Robert is a Principal Engineer at the Software Engineering Institute (SEI) and currently serves as Deputy Director of the Software Solutions Division. In this role, Mr. Robert provides leadership for software engineering research and development of technologies in partnership with Department of Defense (DOD) programs and industry to enable broad transition of new software engineering approaches.

Mr. Robert previously served for two years as Technical Director of the Client Technical Solutions Directorate, leading a portfolio of more than 40 defense, intelligence community, and civil agency customer engagements. Mr. Robert has led multiple SEI technical partnerships with high-priority

DOD programs to ensure high customer value while connecting SEI research activities to DOD programs. In addition, Mr. Robert has mentored student project teams in the Carnegie Mellon University (CMU) Master's of Software Engineering (MSE) and related programs for more than 12 years.

Prior to his work at SEI, Mr. Robert worked at the Naval Air Warfare Center Aircraft Division (NAWC-AD) as part of the aircraft distributed simulation team. As a technical project lead, Mr. Robert developed Distributed Interactive Simulation (DIS) and High Level Architecture (HLA) network applications to connect high-fidelity aircraft simulators for training and R&D virtual battlefield exercises. Prior to his work at NAWC-AD, Mr. Robert worked as a software developer of embedded real-time systems for J.F. Taylor, Inc.

Mr. Robert holds a Master of Software Engineering degree from Carnegie Mellon University and a Bachelor of Science degree in Electrical Engineering from West Virginia University.

Jeffrey Schweitzer is the 5G/MEC Solutions Innovation Architect in Verizon's Public Sector Product organization, focusing on developing pioneering architectures, integrated solutions, and over-the-horizon applications for the Department of Defense (DOD), federal, state, and local agencies, and those which can benefit from other facets of Verizon's business organization. Working directly with customers to ideate, prototype, test, and productize solutions that benefit from 5G architectures, this role permits exploration and the opportunity to "Redefine the Art of the Possible" in ways that can only be imagined.

Mr. Schweitzer originated the concept of globally scaling the first Zero Trust Networking technology, known as Software Defined Perimeter. He has pioneered applications of emerging technologies spanning unmanned and autonomous systems, highly advanced communication and collaboration platforms, as well as numerous unconventional solutions for large-scale disasters, terror threats, cyber threats, and most recently the COVID-19 pandemic. From his creation of Operation Convergent Response, the world's first immersive technology testing and demonstration event simulating real-world disaster situations, to leading disaster response support efforts at Mexico Beach, Florida after Category 5 Hurricane Michael, his passion for innovation has been field proven in some of the most strenuous environments and under the harshest of conditions.

His passion for helping those who cannot help themselves serves as a driving force for innovation and is the key to his passion to contribute to making the world a better place.

Specialties: Software Defined Perimeter (SDP)/Zero Trust Networking; 5G; MEC; Tactical Networking; Unmanned Aerial Systems (UAS); Incident Command Response Platform development (Vehicular and Integrated Systems); Secure Cloud Interconnect and Mobile Edge Compute; Disaster Preparedness and Emergency Response; Common Operating Picture; Cognitive Fingerprinting (CF); NEIBOTs; NextGen Integrated Solution Concepts and Frameworks Development; "Art of the Possible" Thought Leadership; Quantum HyperNet; SaaS; Unified Communications; Contact Center; Mobility; IPv6; Cloud Computing; Security; Cyber and Terrorism Threat Detection and Response; Surveillance, Analytics and Forensics; Policy and Governance; Enterprise Architecture; Business Transformation Consulting and Professional Services.

Pamela D. Whitley is the Assistant Administrator for the Next Generation Air Transportation System (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). 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 is responsible for planning and executing the aviation research portfolio and delivering research results to support the overall advancement of aviation. Since 2011, Ms. Whitley has held leadership positions with various responsibilities designed to support long-term planning for the entire NAS. As a result, she has consistently supported strategic planning efforts to help define the future vision of the NAS.

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 began her FAA career 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 matured and deployed key programs and completed research activities that are now modernizing the aviation system.

Ms. Whitley earned a Bachelor of Science Degree in Electrical Engineering at Southern University in Baton Rouge, LA. In addition to extensive leadership training, she also completed the Senior Managers in Government Program at the Harvard Kennedy School.

Shelley J. Yak is the Director of the FAA William J. Hughes Technical Center, within the Next Generation Air Transportation System (NextGen) Organization. Ms. Yak serves as principal advisor and is responsible for managing, operating, and maintaining world-class aviation laboratories; planning and coordinating FAA's research and development program; conducting applied research and development; testing, evaluating, verifying, and validating current national airspace system and future next-generation air transportation systems; and providing facility maintenance, engineering support, and support services for all properties located at the William J. Hughes Technical Center.

Ms. Yak has extensive operational experience in leading organizations through change, building cross-organizational teams, leveraging strong project management and leadership capabilities to build effective business processes, and delivering technology solutions. Her prior positions within the FAA included Deputy Director of the Technical Center, supporting the previous director in making the Technical Center the nation's premier aviation and air traffic management federal laboratory. Ms. Yak was also the Division Manager of the Center Operations team where she was responsible for the operation, maintenance, and sustainment of the Technical Center facilities, which provide support and technical services. During her tenure in this position, she also acted in the position of Director of NextGen Performance and Reporting, in which she was responsible for defining and establishing this newly formed organization, and Director of Operational Evolution Partnership Planning. Previously, Ms. Yak held the position of Division Manager of Information Technology (IT) responsible for the management and security of the Technical Center IT network and telecommunications infrastructure, help desk and desktop support services, and software application development and support.

Prior to joining the FAA in 1997, Ms. Yak was the Superintendent of Power Delivery Dispatch and Support for Atlantic City Electric where she oversaw the dispatch of personnel responsible for the investigation and restoration of power during normal and emergency conditions and the technical staff responsible for maintaining, operating, and supporting the Energy Management and Power Distribution Management computer systems.

Ms. Yak holds a Bachelor of Science degree in Information and System Science from Stockton University and a master's in Engineering Management from Rowan University. She has received numerous internal and industry leadership and excellence awards throughout her career.

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