## NATIONAL ACADEMIES

Reintroducing Human Systems Integration: Evolving Frameworks, Global Applications, and Future Directions Hosted by: Board on Human-Systems Integration (BOHSI)

This webinar will reintroduce Human Systems Integration (HSI), exploring how the field has evolved and how it is currently being applied across sectors. It will revisit the foundational frameworks of HSI, trace its historical development, and highlight current implementations and innovations in government, industry, defense, and academia.

Speakers will share insights into: How HSI has been defined and applied across domains Emerging practices and evolving international perspectives HSI in education: curriculum design, components, and credentials Resources available for practitioners, educators, and policy leaders

This session is designed for a broad audience—from seasoned professionals in the federal and defense sectors to industry leaders, educators, and new voices exploring the future of HSI.

This event is sponsored by the National Academies' Board on Human-Systems Integration (BOHSI), in conjunction with the American Psychological Association (APA), the Federal Aviation Administration's Office of Labor Analysis (FAA ALA), the Human Factors and Ergonomics Society (HFES), the National Aeronautics and Space Administration (NASA), and the Society for Industrial and Organizational Psychology (SIOP).

**Paul Lambertson**, Co-chair INCOSE HSI working group, Boeing Company designated Expert, consultant engineer for Flight Crew Operations. He has been in the aerospace industry for over twenty years and in that time, he has had a focus on human to machine interface for the design and operations of flight decks. He has lead projects on all of Boeings current commercial aircraft and has been fortunate to lead many design teams. These teams include human factors and ergonomics, test and evaluation, Optics and lighting and human system integration and strategy. Paul currently leads a team for flight deck product development for simulation and strategy. Paul has been interested in the human to machine interfaces since he first flew aircraft as a young child, at a young age He engaged in improving aircraft interfaces for experimental aircraft. This developed into a passion for improving human interfaces. His first major human interface activity was in the automotive industry working to understand noise, vibration and handling from a user perspective. Paul took these skills to the aircraft industry. He is a pilot, has a Bachelor of Science in Mechanical Engineering, a Master's in Business Administration and several certificates related to systems engineering, technology, ergonomics and human factors.

**Stephen C. (Steve) Merriman** has BA and MA degrees in psychology, a program management certificate from the Defense Acquisition University and 55+ years of experience as a practitioner of human factors engineering (HFE) and human systems integration (HSI). He has supported more than 65 acquisition programs, including the NASA Space Shuttle, Army ground combat vehicles/unmanned air vehicles/missile systems, and more than 50 Navy, USMC Army and Air Force aircraft, including the new Air Force ONE (VC-25B). From 1967 until 1987, he held systems acquisition and R&D positions with the US Navy, DoD Training and Performance Data Center and the Office of the Secretary of Defense. From 1987 through 2015, he served in technical and leadership positions with The Boeing Company. From 2016 to the present, he has served as an HSI consultant and/or employee of DoD or industry clients. Steve is an active member of several technical societies and government-industry associations. He is a Human Factors and Ergonomics Society Fellow, an Aerospace Medical Association Associate Fellow, and a Boeing Associate Technical Fellow. Steve was a member of the US Air Force Scientific Advisory Board (2015-2018). He was a past chair of the SAE G-45 HSI Committee and currently serves as their senior advisor. He is a current Director with the Foundation for Professional Ergonomics (FPE) and a Life member of the SAFE Association. He authored the two DoD Data item requirements for HSI and led the SAE International team that authored SAE6906A, Standard Practice for Human Systems Integration.

**Michelle Robertson** is the Executive Director of the Office Ergonomics Research Committee, a lecturer at Northeastern University, School of Business, and the University of California, Berkeley Center of Occupational and Environmental Health, and a research faculty at the University of Connecticut, Psychological Sciences. Previously, she was a research scientist in human factors and ergonomics at the Liberty Mutual Research Institute for Safety, and was on the faculty at the University of Southern California, Human Factors Department. Dr. Robertson has conducted over 25 years of field and applied Human Factors & Ergonomics intervention research projects using a systems, macroergonomics, approach and has published over 110 articles. She is a Fellow of the Human Factors and Ergonomics Society and the International and Ergonomics Association and has served on the Executive Council for both the Human Factors & Ergonomics Society, International Ergonomics Association, and External Board for Sandi Labs, and currently is the conference co-chair for the Human Systems Integration (INCOSE) Working Group. She has been the recipient of several awards, including the NORA/NIOSH innovative research award, the NIOSH/APA Best Intervention Honorable Mention paper, and the HFES Alphonse Chapanis best paper award. Dr. Robertson is a Board-Certified Professional Ergonomist. She received a Ph.D. in Instructional Technology and an M.S. in Systems Management both from the University of Southern California and a B.A. in Human Factors/Ergonomics from the University of California, Santa Barbara.

**Wendy A. Rogers**, Ph.D., is Khan Professor of Applied Health Sciences at the University of Illinois Urbana-Champaign. She received her B.A. from the University of Massachusetts - Dartmouth, and her M.S. and Ph.D. from the Georgia Institute of Technology. She is a Certified Human Factors Professional (BCPE Certificate #1539). Her research focuses on advanced technology design to support autonomy of older adults, with and without disabilities. She explores the benefits of technologies including robots, smart-home technology, digital health, wearables, and telehealth for cognitive, physical, and emotional health. She is Director of the McKechnie Family LIFE Home and the Human Factors and Aging Laboratory; and Program Director of CHART (Collaborations in Health, Aging, Research, and Technology). She is funded by the National Institutes of Health through the National Institute on Aging through the Center for Research and Education on Aging and Technology Enhancement (CREATE); the National Institute of Nursing Research; and the Department of Health and Human Services through the National Institute on Disability, Independent Living, and Rehabilitation Research through Rehabilitation Engineering Research Centers on Technologies to Support Aging-in-Place for People with Long-Term Disabilities (TechSAge) and Center for Enhancing Neurocognitive Health, Abilities, Networks, and Community Engagement (ENHANCE).

Lawrence G. Shattuck is retired and has previously served as the Institutional Review Board Chair at the Naval Postgraduate School (NPS). For the previous 17 years, he was the Director of the NPS Human Systems Integration (HSI) Program. Prior to NPS, Dr. Shattuck served in the Army for 30 years, retiring as a colonel. He has been an active researcher for nearly forty years in the application of HSI to military systems, communication of intent, decision-making, human error, situation awareness, and military command and control. Dr. Shattuck recently received the Human Systems Integration Lifetime Achievement Award in recognition of his service to the US Navy Human Systems Integration program. He is a recipient of several symposia and journal best paper awards, including the Journal of Organizational Studies, the International Command and Control Research and Technology Symposium, and the Journal of Cognitive Engineering and Decision Making. Dr. Shattuck received his B.S. in Engineering from the US Military Academy, M.S. in Human Factors Psychology from Rensselaer Polytechnic Institute, and Ph.D. in Cognitive Systems Engineering from the Ohio State University.

**Eric Stohr** has been serving as a Human Factors and Systems Engineering defense contractor for over 27 years, with the last 25 years out of the Naval Surface Warfare Center in Dahlgren, VA. Over his career, he has provided engineering and acquisition support to Air Force, Marine Corps, Naval Sea and Naval Air programs. His focus areas of expertise include requirements analysis and specification writing; human interface design; system test & evaluation including usability assessment and MIL-STD-1472 requirements verification; HSI policy drafting; HSI Statement of Work preparation; human performance data collection and analysis; and HSI standards writing. He has been a member of the SAE International G-45 HSI Committee since 2017, serving as Co-Chair for industry and for the last three years as Chair. Educationally, he has an MS in Human Factors Psychology from Wright State University and an ME in Systems Engineering from the University of Virginia.