DEPARTMENT OF DEFENSE
HUMAN FACTORS ENGINEERING
TECHNICAL ADVISORY GROUP
Meeting #76

U.S. Department of Transportation
Volpe Center

DOD HFE TAG Program

Balancing Risk and Performance

22-25 April 2024
Marshall Space Flight Center
Huntsville, AL

DOD HFE TAG Explained

Origin

The Department of Defense Human Factors Engineering Technical Advisory Group (DoD HFE TAG) was implemented by a Memorandum of Understanding signed by the Assistant Secretaries of the Services in November 1976 for the purpose of coordinating and communicating research and development at the working level among the services and other Government agencies involved in Human Factors Engineering (HFE). The first DoD HFE TAG (TAG) meeting convened on August 9–10, 1977, in Fort Washington, Pennsylvania.

Goals

The major goal of TAG is to provide a mechanism for the timely exchange of technical information in the development and application of HFE by enhancing the coordination among Government agencies involved in HFE technology research, development, and application. TAG also assists in the preparation and coordination of tri-service documents and advisements and sponsors in-depth technical interaction, which aids in identifying HFE technical issues and technology gaps.

Scope

Due to the diversity of the subject matter covered by the HFE discipline, the scope of the technical areas addressed by TAG is broad. TAG defines HFE as dealing with the concepts, data, methodologies and procedures that are relevant to the development, operation, and maintenance of hardware and software systems. The subject matter subsumes all technologies aimed at understanding and defining the capabilities of human operators and maintainers. TAG is comprised of technical sessions focused on specific topic areas. Referred to as SubTAGs, they are led by dedicated SubTAG Chairs.

Composition

TAG is composed of technical representatives from the Department of Defense (DoD) Services, National Aeronautics and Space Administration (NASA), Federal Aviation Administration (FAA), Department of Homeland Security (DHS), and the Department of Veterans Affairs (VA), with technical responsibilities in human factors and related disciplines.

Representatives from organizations and activities with allied interests, technical experts in special topical areas, and official representatives of technical societies or industry associations are also invited to attend specific meetings. These representatives must be credentialed by the TAG before attending.

TAG Proponent

CDR Wilfred Wells, PhD, MSC Human Systems Director, Office of the Under Secretary of Defense for Research and Engineering/Director of Defense Research and Engineering (Research and Technologies) (OUSD(R&E)/DDRE(RT)).

More Information

More information about the TAG, including details and presentations from previous meetings, is available at: http://www.acq.osd.mil/rd/hptb/hfetag.

THEME

Balancing Risk and Performance

The goal of human factors engineering has long been to design systems by taking into consideration the respective strengths and limitations of the human and its "machine" counterpart, assigning tasks accordingly, culminating in a system that operates at its optimum capability. While optimum performance is the goal, the reality of system development typically dictates a set of tradeoffs to achieve system fielding in a timely, cost-efficient manner. These tradeoffs will likely result in a system that is sub-optimal in performance and perhaps poses some amount of risk to, or caused by, the humans in the loop, but ultimately helps meet a critical capability gap.

In a human factors engineering utopia, there would be plenty of money, unlimited time and resources to conduct tests and experiments, and customers with never-ending patience. But, until such a place on Earth comes to be, human factors engineers will find themselves playing an active role in the design tradeoff process, advocating for the human, yet having to balance various risks with overall system performance.

For TAG 76, we have encouraged submissions that focus on the delicate balance between risk and system performance. These might discuss novel group decision making strategies, tradeoff analyses, experimentation, modeling and simulations, along with their results and lessons learned. How can human factors engineers adjust their work to deliver actionable products at the pace of operations? We hope this year's meeting will stimulate discussion around roles and strategies for human factors engineering work in complex systems.

TAG LEADERSHIP 2024

Chair: Dr. Daniel Mountjoy, USAF, TAG Member since 2019

Dr. Mountjoy is the Lead Escape and Crew Systems Engineer in the T-7 Program Office, Mobility and Training Directorate, Air Force Life Cycle Management Center (AFLCMC). His primary duties involve technical oversight and management of engineering activities related to the design and qualification of the T-7 escape system, life support system, and aircrew-crew station interfaces. He previously served as a Human Factors Engineer on the Interiors team of the VC-25B (Next Air Force One), and as the Lead Headgear Domain Engineer in AFLCMC's Human Systems Division. Prior to joining AFLCMC, he served as an HSI consultant in the Air Force Research Laboratory, 711th Human Performance Wing, Human Systems Integration Directorate, where he conducted ergonomic assessments for a variety of aircrew tasks and workstations. Dr. Mountjoy holds a BS and MS in Systems/Human Factors Engineering from Wright State University, a PhD in Industrial Engineering (Ergonomics concentration) from North Carolina State University, and HSI Certification from the Naval Postgraduate School.

Vice Chair: Mr. Anthony T. Thomas, NASA, TAG Member since 2018

Mr. Anthony "Tony" Thomas is a Human Systems Integration (HSI) Subject Matter Expert (SME) assigned to the NASA Langley Research Center, Engineering Integration Branch and Engineering Directorate. Mr. Thomas is a member of the NASA HSI Community of Practice (CoP) where he is currently designing HSI training and guidance for the agency, including general HSI training, HSI Implementation for Project Managers, and the NASA HSI workforce development curriculum. Mr. Thomas started his service with NASA in December of 2021. Prior to his current position, Mr. Thomas served the US Air Force for six years in various roles including the HSI lead for all Global Strike Command bomber and missile programs, writing policy for the Specialty Systems Engineering team at the Pentagon for USAF HQ, and managing the activities of the Department of Defense Joint HSI Working Group supporting the Office of Under Secretary of Defense. Mr. Thomas has worked with several aspects of HSI practices gaining a variety of experiences that also includes supporting US Navy and Marine Corps programs as a Human Factors Engineering specialist for the Naval Surface Warfare Center – Dahlgren Division out of Dahlgren, Virginia. Mr. Thomas holds a MS in Human Factors and Systems from Embry-Riddle Aeronautical University, Daytona Beach, Florida.

Outgoing Chair: Dr. Helen Fuller, VA, TAG Member since 2017

Dr. Fuller is a Systems Safety Engineer with the Department of Veterans Affairs (VA) Veterans Health Administration (VHA) Office of Health Informatics (OHI) Clinical Informatics and Data Management Office (CIDMO) Human Systems Integration (HSI) team. Her responsibilities include analyzing, designing, and testing VHA healthcare systems, including processes, workflows, and the optimization of and risk management for system performance. She provides expert advice and counsel on human performance issues and supports the implementation of the human-centered design (HCD) approach across VHA. Dr. Fuller completed her PhD in Biomedical Engineering at the University of Michigan, with a focus on human factors and ergonomics, including cognitive and physical modeling of driver distraction. She has completed a fellowship in Patient Safety with the VHA National Center for Patient Safety and received HSI Certification from the Naval Postgraduate School.

SCHEDULE AT A GLANCE

Monday, 22 April

0900 – 1030	Training: Next Generation of Simulation and Training using Virtual and Augmented Reality (Virtual)
1300 – 1600	Check In

TAG Leadership Meetings – Invitation Only

1500 – 1600	TAG Operating Board Meeting (Room 2)

Tuesday, 23 April

0800 – 1700	Check In
0830 – 1200	Opening Session: Welcome, Plenary Panel, and Keynote (Auditorium)
1300 – 1400	HRL Familiarization Session (Room 1)
1300 – 1530	Modeling & Simulation SubTAG (Room 3)
1300 – 1530	Healthcare Human Factors SubTAG (Room 4)
1300 – 1600	Personnel and Human Performance Measurement Combined SubTAG (Room 2)
1400 – 1600	SAE G45 HSI Committee (Room 1)
1530 – 1700	Sustained Operations SubTAG (Room 3)
1600 – 1700	TAG New Member Orientation (Room 1)
1700	Close Day Two

Wednesday, 24 April

0730 – 1530	Check In
0800 – 1000	Safety, Survivability, & Health Hazards SubTAG (Room 2)
0800 – 1000	Design Tools & Techniques SubTAG (Room 3)
0800 – 1200	Mixed Reality SubTAG (Room 4)
0830 – 1000	Trust in Autonomy SubTAG (Room 1)
1000 – 1130	Cognitive Readiness SubTAG (Room 2)
1000 – 1200	Controls and Displays SubTAG (Room 1)
1000 – 1200	Test and Evaluation SubTAG (Room 3)
1300 – 1515	Potpourri Session (Room 3)
1300 – 1530	Training SubTAG (Room 1)
1300 – 1530	HFE / HSI SubTAG (Room 2)
1530 – 1700	Tours
1700	Close Day Three
1730 – 2030	Social with Tennessee Valley HFES Chapter Old Town Beer Exchange 301 Holmes Ave NE STE 150 Huntsville, AL 35801 (256) 270-7825 Web: OTBX Huntsville (oldtownbeerexchange.com)

Thursday, 25 April
Morton Hall, University of Alabama in Huntsville

0800 – 0900	Caucuses: Army (Room 292), Navy (Room 293), USAF (Room 294), Government (Room 145)
0930 – 1200	Tours
1200 – 1400	Flight Symbology Working Group (Room 292)
1300 – 1400	Technical Society / Industry SubTAG (Room 293)
1300 – 1530	MBSE and HSI SubTAG (Room 294)
1400 – 1530	Standardization SubTAG (Room 292)
1530	End of Technical Program
1530 – 1630	TAG Operating Board Meeting (Room 292)
1630	Close of TAG 76, see you next year!

PROFESSIONAL DEVELOPMENT

Training: Next Generation of Simulation and Training using Virtual and Augmented Reality

Facilitator: Dr. Ryan Harari, Harvard Medical School, Mass General Brigham

This workshop is centered on advancing simulation and training techniques through the application of Augmented Reality (AR), Virtual Reality (VR). It aims to provide a comprehensive overview of AR and VR technologies, their current applications, design process, and future potential in enhancing design and training methodologies.

- Overview: Participants will be introduced to the fundamentals of AR and VR, understanding their evolution, diverse applications, and the trajectory of these technologies.
- Application in Research and Design: The session will demonstrate the transformative impact of AR and VR on simulation, training, and decisions support systems, by practical examples from various disciplines, underscoring their significance in simulation and training enhancement.
- Project Development: Insights into developing immersive training and decision support systems will be shared, showcasing the practical application of AR/VR in critical scenarios and providing a guide from project conception to creation.
- Conclusion: The workshop concludes with a Q&A session, promoting direct interaction and further exploration of AR and VR applications in simulation and training.

Dr. Ryan Harari, a Research Scientist at Harvard Medical School and a faculty member at Mass General Brigham's Department of Emergency Medicine, has a multidisciplinary academic background that includes a PhD in Systems Engineering and dual Master's degrees in Computer Sciences and Cognitive Engineering. Dr. Harari has led and actively contributed to the conception, technology development, and assessment of AI, Augmented- and Virtual Reality-based clinical decision support systems in several research efforts funded by NASA, NIH, DoD, and NSF, aim to advance the capabilities of clinicians, astronauts, and military crews in demanding environments. Furthermore, Dr. Harari is dedicated to leveraging AI to reduce health disparities. His work has been recognized both locally and nationally, resulting in several peer-reviewed publications, book chapters, and numerous presentations at conferences as an invited speaker.

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INVITED SPEAKERS

TAG Welcome

Commander Wilfred H. Wells, Ph.D.

Director for Human Systems, DoD HFE TAG Proponent
Office of the Under Secretary – Research and Engineering

Commander (CDR) Wilfred Wells was born in St. Georges, Grenada and was raised in Miami, Florida. He earned a Bachelor's Degree in Industrial Engineering from the University of Central Florida in 1997 and received a commission into the United States Navy via Officer Candidate School in 1998. His first tour was on the destroyer, USS Nicholson, where he served as Anti-Submarine Warfare Officer. During his tour the Nicholson conducted cruise missile strikes into Kosovo in support of Operation Noble Anvil.

From Nov 2000 to June 2002 he was assigned to the aircraft carrier USS Theodore Roosevelt (CVN-71) as the Auxiliaries Division Officer. On Sept 19, 2001, CDR Wells deployed with the Theodore Roosevelt Battlegroup in support of Operation Enduring Freedom.

Ashore, he served as a Program Manager for the Cargo Offload Discharge System at NAVAIR Orlando from June 2002 to August 2004. CDR Wells earned a Master's degree in Industrial Engineering at the University of Central Florida in August 2004 and was selected into the Aerospace Experimental Psychologist community.

From 2005 to 2008, CDR Wells was assigned to the Training Technology Department at NAVAIR Orlando as a Science and Technology Manager for Virtual Technologies & Environments program which designed, developed & evaluated a Combined Arms Training System for the United States Marine Corps.

In August 2011, he successfully defended his dissertation at the University of Central Florida and completed all requirements in the Human Engineering and Ergonomics program. In 2011 he was transferred to Naval Medical Research Unit-Dayton, Wright Patterson Air Force Base in Dayton, OH and served as the Biomedical Sciences and Acceleration & Sensory Sciences Department Head.

His next tour was in Patuxent River, Maryland from July 2014 to Aug 2018. He was assigned to the P-8A Poseidon and MQ-25 Stingray unmanned aircraft programs as the Human Systems Team Lead.

In Aug 2018, CDR Wells returned to Naval Air Warfare Center – Training Systems Division and initially served as the Military Director of Research & Engineering, but was selected to serve as the Assistant Executive Officer for the command for eight months.

Currently, he is stationed at the Office of the Under Secretary of Defense Research and Engineering as the Director of Human Systems. He oversees a $1.2B/year research portfolio that is developing innovative S&T research that enhances warfighter performance, protection, nutrition, training and decision-making across all military operations.

He completed the Joint Professional Military Education I (JPME I) program at the Air Force University and holds DAWIA certifications in Systems Engineering Level III, Program Management Level III & S&T PM Level II.

His military awards include the Meritorious Service Medal (2 awards), Navy and Marine Corps Commendation Medal (3 awards), Navy and Marine Corps Achievement Medal (2 awards), and Global War on Terrorism Service and Expeditionary Medals.

Ms. Lisa Bates

Deputy Director, Engineering Directorate, NASA Marshall Space Flight Center

Lisa Bates is the deputy director of the Engineering Directorate at NASA's Marshall Space Flight Center. Bates is jointly responsible for the center's largest organization, comprised of more than 2,000 civil service and contractor personnel, who design, test, evaluate, and operate flight hardware and software associated with Marshall-developed space transportation and spacecraft systems, science instruments, and payloads.

She was previously director of Marshall's Test Laboratory. Appointed to the position in 2021, Bates provided executive leadership for all aspects of the Laboratory, including workforce, budget, infrastructure, and operations for testing.

She joined Marshall in 2008 as the Ares I Upper Stage Thrust Vector Control lead in the Propulsion Department. Since then, she has served in positions of increasing responsibility and authority. From 2009 to 2017, she served as the first chief of the new TVC Branch, which was responsible for defining operational requirements, performing analysis, and evaluating Launch Vehicle TVC systems and TVC components.

As the Space Launch System (SLS) Program Executive from 2017 to 2018, Bates supported the NASA Deputy Associate Administrator for Exploration Systems Development as the liaison and advocate of the SLS. Upon returning to MSFC in 2018, she was selected as deputy manager of the SLS Booster Element Office. Bates also served as deputy manager of the SLS Stages Office from 2018 to 2021 where she shared the responsibilities, accountability, and authorities for all activities associated with the requirements definition, design, development, manufacturing, assembly, green run test, and delivery of the SLS Program's Stages Element.

Prior to her NASA career, Bates worked 18 years in private industry for numerous aerospace and defense contractors, including Jacobs Engineering, Marotta Scientific Controls, United Technologies (USBI), United Defense, and Sverdrup Technologies.

She holds a bachelor's degree in mechanical engineering from the University of Alabama in Huntsville. She was awarded a NASA Outstanding Leadership Medal in 2013 and 2022, and has received numerous group and individual achievement awards. Bates and her husband, Don, reside in Madison and have four children.

Keynote Address

Dr. Gaurav Sharma, ST

Chief Scientist, 711th Human Performance Wing, Air Force Research Laboratory

Dr. Gaurav Sharma, a member of the scientific and professional cadre of senior executives, is the Chief Scientist of the 711th Human Performance Wing, Air Force Research Laboratory, Wright-Patterson Air Force Base, Ohio. He is the primary science and technology advisor to the Wing commander. In this position, he provides technical vision and strategy for the Wing's science and technology plans, and coordinates with other Department of Defense organizations, academic institutions, and industrial partners.

Dr. Sharma began his career with the Air Force in 2020, serving as the Senior Scientist for Cognitive Neuroscience. In this role, he supported the Director and the Chief Scientist in technical reviews and assessment of programs and new study areas, and interacted with other Air Force and government agencies in matters relating to cognitive science, including artificial intelligence, cognitive psychology, computational modeling and simulation, decision science, education and training, human performance and learning, and human-machine teaming.

Prior to his work with the Air Force, Dr. Sharma was at Battelle Memorial Institute where he co-created and led the NeuroLife program to develop groundbreaking neural bridging technologies that helped a paralyzed individual regain control of his hand using an implanted Brain Computer Interface. He then led the expansion of the program, building the team and growing the business portfolio from an internally-funded research effort to a strategic business offering generating significant external investments. He was also the Principal Investigator on Defense Advanced Research Project's next-generation non-surgical Neurotechnologies (N3) program where he led a multidisciplinary team to develop novel, minutely invasive, injectable BCIs to improve Airmen performance. His work has been widely covered in the media and published in high-impact journals including Nature, Nature Medicine and Cell. He has more than 10 patents granted and filed, and has won three R&D 100 Awards, BCI Best Technology Award and Battelle's President's Achievement Award.

Plenary Session Panelists

Dr. Kathy Abbott

Chief Scientific and Technical Advisor for Flight Deck Human Factors, Federal Aviation Administration

Dr. Kathy Abbott is the FAA's Chief Scientific and Technical Advisor for Flight Deck Human Factors, with over 40 years of work on human performance. Dr. Abbott has led the integration of human engineering into FAA/international regulatory material and policies for flight guidance systems, avionics, all-weather operations, Required Navigation Performance, crew qualification, data communication, instrument procedure design criteria, electronic flight bags, electronic displays, organizational culture, flight crew alerting, manual flight operations, and other areas. Dr. Abbott came to the FAA from NASA, where she was responsible for leading analytical, simulation, and flight studies with the specific objective of improving aviation safety and operational efficiency. She is a Fellow of the Royal Aeronautical Society, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a Member of the Livery of the Honourable Company of Air Pilots.

Ms. Tandi Bagian

Associate, NASA Engineering and Safety Center [NESC]
Human Factors Technical Discipline Team

Tandi Bagian was employed by NASA's Johnson Space Center and served as Lead Instructor for Astronaut Crew Training; Flight Projects Manager for the Space Biomedical Research Institute; and Head of the Crew Interface Analysis Section in support of NASA's Space Shuttle and Space Station missions. She also was Principal Science Coordinator for Exploration Human Factors helping create an Advanced Human Support Technology roadmap in preparation for Mars Exploration mission definition. Transferring from NASA to the EPA's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, she served in a variety of leadership roles developing and proposing Federal regulations; assuring compliance and measurement of associated reductions in harmful pollutants; and achieving Testing Lab accreditation to the ISO 17025 Quality Standard. Tandi joined the VA National Center for Patient Safety as Director, Human Factors Engineering Division [retitled Chief Engineer] with a vision to make sure 'patient safety is everyone's business.' The team created strong technical partners across the 172 VA Medical Centers, as well as with medical device industry partners, to assist Patient Safety professionals in providing 'safer systems, safer care.' Ms. Bagian retired in 2022 and joined the NASA Engineering and Safety Center's Human Factors Technical Discipline Team as an Associate. This HF team is responsible for anticipating and responding to assessment, analysis, and review requests across the NASA Centers and Commercial/International partners, to ensure the successful performance of Lunar and Martian missions.

Mr. Brandon Daugherty

Director of Safety, US Army Aviation & Missile Command

As a Supervisory Safety Engineer, Mr. Brandon Daugherty serves as the Director of Safety at the U.S. Army Aviation and Missile Command (AMCOM). As the Director of Safety, he oversees four Safety Divisions (Air Defense, Aviation, Operations, and Tactical Missiles) with a workforce of more than 80 persons (Civilians and Contractors) consisting primarily of safety engineers, occupational safety and health managers, and aviation maintenance specialists. In this role, he advises AMCOM Leadership on all safety and maintenance matters impacting U.S. Army Aviation and Missile systems to optimize joint Warfighter capabilities at the point of need. Prior to being selected to this role in March 2024, Mr. Daugherty served in various roles within the Aviation Systems Safety Division at the AMCOM Safety Office to include Aviation System Safety Division Chief, Manned Aircraft Team Lead, Safety of Flight Team Lead, and System Safety Engineer. In these roles, he provided leadership at various levels and served as the resident safety engineering subject matter expert advising AMCOM Leadership along with Program Executive Office (Aviation), Program and Product Managers, and other military and non-military users on life cycle safety engineering for Army aviation weapon systems. Overall, Mr. Daugherty has nearly 14 years of safety engineering and risk management experience across both the Private and Public sectors supporting Army aviation weapon systems.

Dr. Daniel Wallace

Former Technical Warrant Holder for Displays and Human Factors Engineering, Naval Sea Systems Command

Daniel Wallace is recently semi-retired and was the Technical Warrant Holder for Displays and Human Factors Engineering for the Naval Sea Systems Command (NAVSEA) for 12 years. As a Technical Warrant holder, he was responsible to assist acquisition programs in balancing operational, technical, and programmatic risk against human performance demands and requirements. His PhD is in Cognitive Experimental Psychology from the University of Maryland. He has worked for IBM and a Navy defense contractor before joining the Navy in 1996. He has been instrumental in developing a number of specs, standards, processes, policy, tools, and practices for DoD human factors, but is quick to acknowledge that this business is a team sport, and these products are a community effort. When not doing human factors, he is active in community STEM outreach, serving on the County school board, and doing volunteer disaster relief. Oh, and he has been known to make a balloon animal or two. While Daniel may have retired from government service, he will continue working part-time with Basic Commerce and Industries.

Ms. Jennifer Wourms

Technical Director, Flight Systems Engineering Division, Air Force Life Cycle Management Center

Jennifer Wourms is the Flight Systems Engineering Technical Director for Air Force Life Cycle Management Center Engineering Directorate. She has over 35 years of experience developing and implementing requirements, assessing airworthiness, facilitating training, and ensuring documentation of lessons learned and risk in the areas of Sub-systems, Crew Systems, Propulsion, Flight Technology and Structures. The majority of that experience being in the Crew Station, Escape Systems, Life Support, and Human Factors domains on platforms including NASP, AC-130U Gunship, C-130J, C-5, B-1B, T-6, T-7, and as Chief Engineer of Human Systems Division. Jennie has a BS in Biomedical Engineering from Case Western Reserve University, a Masters in Human Factors Engineering from Wright State University, and a Graduate Certificate in Human Systems Integration from the Naval Postgraduate School.

DETAILED AGENDA

Monday, 22 April 2024

0900 - 1030 Virtual	**Training:** Next Generation of Simulation and Training using Virtual and Augmented Reality *Dr. Ryan Harari, Harvard Medical School, Mass General Brigham*

TAG Operating Board Meeting (Closed Meeting)

22 April 2024 | 1500 – 1600 | Room 1

Tuesday, 23 April 2024

Opening Session

0830 - 0930 Auditorium	**Opening Remarks** *Dr. Daniel Mountjoy, DoD HFE TAG Chair* **Greeting from the Host** *Ms. Lisa Bates* *Deputy Director of Engineering, Marshall Space Flight Center* **Welcome from the HFE TAG Proponent** *CDR Wilfred Wells, PhD* *MSC Human Systems Director, Office of the Under Secretary of Defense for Research and Engineering/Director of Defense Research and Engineering (Research and Technologies) (OUSD(R&E)/DDRE(RT))*
0930 - 1100 Auditorium	**Plenary Panel*: Balancing Risk and Performance*** *Dr. Kathy Abbott, FAA; Mr. Brandon Daugherty, US Army; Ms. Tandi Bagian, NASA; Dr. Daniel Wallace, US Navy (Ret); Ms. Jennnifer Wourms, USAF*
1100 - 1200 Auditorium	**Keynote Address** *Dr. Gaurav Sharma, ST* *Chief Scientist, 711th Human Performance Wing, Air Force Research Laboratory*

HRL Familiarization Workshop, Sponsored by TS/I SubTAG

Facilitator: Dr. Neil Ganey, CHFP CSEP CMSP
NG Fellow for Human Systems Engineering & Integration, Northrop Grumman Corporation

23 April 2024 | 1300 – 1400 | Room 1

SubTAG: Modeling &Simulation

Chairs: Julie Lovell
23 April 2024 | 1300 - 1530 | Room 3

1300 - 1315	Welcome and SubTAG Business *Julie Lovell, 711 Human Performance Wing*
1315 - 1345	Human Digital Twins *Dr. Michael Miller, AFIT, and Dr. Casey Pirnstill, 711 Human Performance Wing*
1345 - 1415	GRILL WEST *Dr. Terrence Andre*
1415 - 1445	Human to Mars, but how Many? Using Imprint Human Performance Models to Inform Crew Size *Bob Sargent, HII-Mission Technologies*
1445 - 1500	Break
1500 - 1530	Reduction of Cognitive Load in Immersive Virtual Reality with Multisensory Cues *Daniel Wilson and Dr. Lisa Vangsness, University of Alabama - Huntsville*

SubTAG: Healthcare Human Factors

Co-Chairs: Tim Arnold and Jill Marion
Past Co-Chairs: Mihriban Whitmore and Helen Fuller
23 Apr 2024 | 1300 – 1530 | Room 4

1300 – 1325	Two Ways to Support Human Factors at the VA Health Care Facility Level *Barry Peterson, Department of Veterans Affairs*
1325 – 1350	Pre-implementation Lessons from the SurgErgo Pilot, a Team-Based Surgical Ergonomics Education and Intraoperative Stretch Breaks Initiative *Kristen Chrouser, Department of Veterans Affairs*
1350 – 1415	Effectiveness of a Smart Tourniquet Training Tool *Madison Niebish and Lolita Burrell, United States Army*
1415 – 1440	Virtual Reality for Three Enrichments of Human Capital *Barry Peterson, Department of Veterans Affairs*
1440 – 1505	In the Words of Human Factors and Healthcare *Tim Arnold, Helen Fuller, and Ruth Reeves, Department of Veterans Affairs*
1505 – 1530	Discussion, SubTAG Business, and Closing Remarks

SubTAG: Personnel & Human Performance Measurement

Chairs: LCDR Sarah Melick, Chanda Sanders, & LT Sarah Beadle
23 APR 2024 | 1300 – 1600 | Room 2

1300-1320 Personnel	Improving Assessments to Understand the Human Side of Human *Carl Persing, DCS Corp*
1320-1340 Personnel	Comparing Insufficient Effort Responding on Crowdsourcing Platforms *Alex Thierbach, DCS Corp*
1340-1400 HPM	Considerations for Standardization & Inclusion of Human Performance Assessment: A Naval Aviation Use Case *Beth Atkinson, NAWCTSD*
1400 – 1420 HPM	Mission Task Analysis Tool *Lisa Bolin, SimVentions and Jennifer McCullough, MARCORSYSCOM*
1420-1430	Break/subTAG Business
1430-1450 HPM	Expanding Automated Performance Measurement with Eye Tracking Technology *Mitch Tindall, NAWCTSD*
1450-1510 HPM	Leveraging Wearable Technology to Detect Military Readiness *CDT Aiden Hopping and COL Brandon Thompson, USMA*
1510-1530 HPM	Cognitive State Monitoring (COSMO) *C1C Kaci Jerry, USAFA*
1530-1600 HPM	Health Readiness and Performance System (HRAPS) Overview *Brian King, Georgia Tech Research Institute*

SAE International G-45 HSI Committee Spring Meeting

Facilitator: Eric Stohr, Sr. Human Factors Engineer, Basic Commerce & Industries
23 April 2024 | 1400 – 1600 | Room 1

SubTAG: Sustained Operations

Chairs: Tony Thomas and Tom Nesthus
23 Apr 2024 | 1530 – 1700 | Room 3

1530 - 1600	Optimizing for Resilience and Innovation *Dr. Corina Rice, BetterUp*
1600 - 1630	Making it Work: Balancing Operational Demands and Quality of Service *Rachel Phillips, Naval Information Forces*
1630-1700	A Mind, Body, Spirit Approach to Balancing Risk and Human Performance *Marianne Paulsen, Naval Information Forces*

New Member Orientation

1600 - 1700 Room 1	**New Member Orientation** Learn about TAG with TAG 76 Vice Chair

Wednesday, 24 April 2024

SubTAG: Safety, Survivability and Health Hazards

Chair: Tony Thomas

Interim Chair and Session Facilitator: Helen Fuller
24 Apr 2024 | 0800 – 1000 | Room 2

0800 - 0830	Aircrew RF Radiation Exposure Analysis *Jeff O'Hara, Georgia Tech Research Institute*
0830 - 0900	What's Next for Crew Alerting? *Tia Larsen-Calcano, U.S. Army*
0900 - 0930	Strategies for Democratizing Human Factors Methods to Promote Systems Safety *Helen Fuller, Kathleen Adams, and Tim Arnold, Department of Veterans Affairs*
0930 - 1000	Discussion, SubTAG Business, and Closing Remarks

SubTAG: Design: Tools and Techniques (DTT)

Chairs: Barbara deBary-Kesner and Patrick O'Neill
24 April 2024 | 0800 – 1000 | Room 3

0800	Welcome *Barbara deBary-Kesner, NSWCDD*
0800 – 0820	Introducing IMPACT: Scaleable Workload for Lab and Field *Graham Sabine, DSTL*
0820 – 0840	Space Launch System Human Factors Engineering Modeling & Analysis *Brooke Allen, NASA*
0840 – 0900	Designing for Maintenance at NASA MSFC *Tanya Andrews, NASA and Jim Neeley, NASA*
0900 – 0920	EQUATE: An Overview and Proposed Validation Plan *Emily Rickel, NAWCTSD and Beth Atkinson, NAWCTSD*
0920 – 0940	Human Factors Engineering Design Influence *Brooke Allen, NASA*
0940 – 1000	NASA Marshall Space Flight Center Human Systems Integration *Tanya Andrews, NASA and Seth Bell, NASA*

SubTAG: Mixed Reality

Chairs: Alex Gray, Amelia Kracinovich, Kirsten Miskovich
24 April 2024 | 0800 – 1200 | Room 4

0800 – 0805	Welcome *Alex Gray, NAWC-AD*
0805 - 0830	Use of Physical Prototypes in Virtual Reality at NASA MSFC *Tanya Andrews & Zachary Taylor, NASA MFSC*
0830 – 0855	Enhancing OODA with Augmented Reality in Simulated Environments *Dylan Wright & Vineetha Menon, University of Alabama in Huntsville*
0900 – 0925	Virtual Bridge Nautical Training (VIBRaNT) *Amelia Kracinovich, NIWC Pacific*
0925 – 0950	Virtual Reality Training Engagement Metrics: Phase 1 Procedure and Analysis *Kirsten Miskovich, NAVSEA Keyport*
1000 – 1025	Mixed Reality Interfaces: Enhancing System Performance through Human Factors Engineering *Dr. Jeff Hansberger, ARL*
1025 – 1050	FAA Extended Reality Technical Interchange Meeting *Sarah Ligda, FAA*
1100 – 1150	Roundtable Discussion
1150 – 1200	SubTag Business

SubTAG: Trust in Autonomy

Chairs: Vicki Ahlstrom and Chelsey Lawson
24 April 2024 | 0830 – 1000 | Room 1

0830-0845	Welcome and SubTAG Business *Vicki Ahlstrom, FAA; Chelsey Lawson, NSWC Dahlgren*
0845 – 0910	Toward a Linguistic Fingerprint™ of Trust *Derek Koehl and Dr. Lisa Vangsness, UAH*
0910 – 0935	What is the role of Usability and Trust in Autonomy? *Dr. Jessica Marquez, NASA*
0935 –1000	A Systemic View of Trust and Adoption of AI in Undersea Warfare *Mr. Steve Dorton, MITRE*

SubTAG: Cognitive Readiness

Chairs: Kirsten Rice, Kellie Turner, and Kelene Fercho
24 April 2024 | 1000 – 1130 | Room 2

1000 - 1005	Welcome and SubTAG Business *Kirsten Rice, AFRL, Kellie Turner, AFRL, Kelene Fercho, FAA*
1005 - 1035	Automation Transition Impacts on Cognitive Workload *LTC Charles Rowan, NPS*
1035 – 1105	Development of Pattern Recognition Capabilities for Real Time Mass Spectral Detection of Stress and Fatigue" *Dr. Sean Harshman, AFRL/711 HPW*
1105 – 1130	Leveraging AI to Assess Human States in Collaborative Human-AI *Dr. Clayton "C.J" Hutto, Georgia Tech Research Institute*

SubTAG: Controls and Displays

Chairs: Chris Taylor (USAF), Ken Robinson (USN), Adam Goetz (USN)
24 April 2024 | 1000 – 1200 | Room 1

1000 - 1015	Welcome and SubTAG Business *Co-Chairs*
1015 - 1045	Let's Get Physical: How Introduction of a Physical Throttle is Improving Usability and Commonality for Navy Ship Control Systems - *Alexandra Ward (USN) and John Winters (BCI)*
1045 - 1115	A Systems Engineering Approach to Speech Intelligibility – *Dr. Dan Gross (USN)*
1115 - 1145	Design Considerations for Upgraded Large Area Displays in the Fighter Cockpit *Dr. Dina Acklin (USN)*
1145 - 1200	SubTAG Charter Revision Co-Chairs

SubTAG: Testing and Evaluation (T&E)

Chair: Stephanie Blake
Session Facilitator: Helen Fuller
24 Apr 2024 | 1000 – 1200 | Room 3

1000 - 1030	Assessment Types for Human Centered Front End Analysis *Dr. Lauren Reinerman-Jones, Defense Acquisition University*
1030 - 1100	Case Study on Change of Mission Affects Acquisition Requirements *Ms. Anna Middleton, U.S. Army*
1100 - 1130	B-52 Commercial Engine Replacement Program Accessibility Study *Ms. Jade Lovell, U.S. Air Force*
1130 - 1200	**Distro C***: Predicting an AI's Mission Impact Using Joint Activity Testing *Dr. Taylor Murphy, Dr. Liana Algarin, National Geospatial Intelligence Agency and Ms. Jennifer Winner, U.S. Air Force*
1200	Closing Remarks

***Distro C:** **Restricted to U.S. Government agency employees and their contractors**

SubTAG: Training

Chairs: Jared Young and Adam Biggs
24 Apr 2024 | 1300 – 1530 | Room 1

1300 - 1305	Introduction to the Training SubTag *Jared Young and Adam Biggs*
1305 - 1330	CCATT and CSTAR Observation of the Assessment and Evaluation Process *Lauren Reinerman-Jones, Defense Acquisition University and SwRI*
1330 - 1355	Humans to Mars, but How Many? Using Training Requirements Modeling to Inform Crew Size *Donna L. Dempsey, NASA*
1355 - 1420	Increasing Military Situational Awareness through Sound Localization Training Methods *Sydney Bender & Zoe Ip, United States Military Academy West Point*
1420 - 1445	Advanced Integrated Resilience System: Developing Resilience among Sailors and Marines *Adam T. Biggs, Cynthia Simon-Arndt, and Lisa Glassman, NHRC*
1445 – 1510	The Manned Orbital Laboratory (MOL) & America's First Space Station *Stephen Hall, NASA (Ret.)*
1510 – 1530	Closing Comments and SubTAG Business *Jared Young and Adam Biggs*

SubTAG: HFE/HSI

Chairs: Sherry Springs, Vicki Ahlstrom
24 April 2024 | 1300 - 1530 | Room 2

1300 – 1330	Welcome and SubTAG Business *Vicki Ahlstrom, FAA; Sherry Springs, NSWCDD*
1330 - 1400	High Reliability Organizations-Leveraging Human Resilience and Performance *Mr. David Fuller, NASA*
1400 - 1430	Identifying Outside Influences as Latent Factors to Risk in Human Performance *Mr. Tony Thomas, NASA*
1430 - 1500	Rotorcraft DVE Critical Task Analysis (CTA) for the DVE-M Program *Mr. Jeffery O'Hara, GTRI GA Tech Research Institute, Human Centered Engineering Division*
1500 - 1530	MEDEVAC Mission Critical Task Analysis (CTA) for the Holistic Situational Awareness - Decision Making (HSA-DM) Program *Mr. Jeffery O'Hara, GTRI GA Tech Research Institute, Human Centered Engineering Division*

SubTAG: Potpourri

Chair (Acting): Marianne Paulsen
24 April 2024 | 1300 – 1515 | Room 3

1300 - 1310	Welcome *Marianne Paulsen, NAVIFOR*
1310 -1330	The risks and threats to functional visual during EVA at the Lunar South Pole *Cynthia Null, NASA and Charles Dischinger*
1330 - 1350	Designing Interpretable AI Systems for UAV Operators *Joseph Schwalb and Vineetha Menon, The University of Alabama in Huntsville*
1350 - 1410	Graphical Features & Perceptions of Reliability *Ginger Sullivan, Andrew Atchley, Lisa Vangsness, and Nathan L Tenhundfeld*
1410 - 1430	Cold Environment HFE: Lessons Learned *Jared Sapp, US Army DEVCOM Analysis Center*
1430 - 1450	Counter-AI: Neuromorphics as the Future of Large Language Modeling *Lauren Reinerman-Jones, DAU and Southwest Research Institute*
1450 - 1510	Analyzing Variability in Decision Making in Complex Systems *Erica Barhorst-Cates, Monterey Technologies, Inc.*
1510 - 1515	SubTAG Close *Marianne Paulsen, NAVIFOR*

University of Alabama in Huntsville
Morton Hall, Rooms 145, 292, 293, 294

Thursday, 25 April 2024

Caucus Meetings

0800 - 0900	*Army, Room 292* *Navy, Room 293* *USAF, Room 294* *Government, Room 145*

Flight Symbology Working Group (US Government Only)

Chairs: Bob Copeland
25 April 2024 | 1200 – 1400 | Room 292

1200 - 1215	Welcome and FSWG Business *Bob Copeland, US Army*
1215 - 1235	Updates to MIL-STD-1787 *Chris Taylor, USAF*
1235 - 1300	Context Driven Aviation Information *Bob Copeland, US Army*
1300 - 1345	General Discussion (EFVS/SVS, Air-to-Ground Tactical Symbology, 3D Conformal Symbology, HMD Symbology, Aircraft Display Management) *Chris Taylor, USAF, Ben Johnson, USN, Bob Copeland, US Army*
1345 - 1400	New Business and Planning *Bob Copeland, US Army*

SubTAG: Technical Society/Industry (TS/I)

Co-chairs: Barb Palmer, Frank Lacson, Steve Merriman
25 April 2024 | 1300 – 1400 | Room 293

1300 - 1310	Welcome, Introductions and TS/I SubTAG Business *Steve Merriman, Frank Lacson*
1310 - 1320	TS/I SubTAG Overview Briefing *Steve Merriman, Frank Lacson*
1320 – 1345	Proposal to Improve HSI / Domain Best Practice Standards for DoD Use *Steve Merriman*
1345 – 1355	Discussion All
1355-1400	Action Item Discussion and Assignment All

SubTAG: MBSE-HSI

Chairs: Tony Thomas and Ana Borja
25 Apr 2024 | 1300 – 1530 | Room 294

1300 - 1330	Human Error Assessment and Reduction Technique Plus (HEART+) *Kimberly Lewis, Naval Surface Warfare Center, Dahlgren Division*
1330 - 1400	Human Factors Analysis in Model-Based Systems Engineering *Shawn Cowan, Naval Surface Warfare Center, Dahlgren Division*
1400-1430	Integrating IMPRINT into MBSE *Dr. Michael Miller, Air Force Institute of Technology*
1430-1530	MBSE-HSI SubTAG Meeting

SubTAG: Standardization

Chairs: Bob Copeland and Ken Robinson
25 April 2024 | 1400 – 1530 | Room 292

1400 - 1405	Welcome and SubTAG Business *Bob Copeland, US Army, and Ken Robinson, US Navy*
1405 - 1425	Auto-testing for MIL-STD 1472 Compliance *Dick Steinberg, Northrup Grumman.*
1425 - 1445	HE and HSI Tradeoff Requirements *Steve Merriman, SCMerriman Consulting LLC*
1445 - 1500	MIL-STD 46855B Revision *Bob Copeland, US Army*
1500 - 1520	Update to the Qualification of Autonomous Functions Framework (QAFF) *Bob Copeland, US Army*
1520 - 1530	General Standard Updates *Open Forum*

TAG Operating Board Meeting (Closed Meeting)

25 April 2024 | 1530 – 1630 | Room 293

Thank you for attending TAG 2024!

DoD HFE TAG #77

Spring 2025

Host: TBD Location: TBD

Check the TAG Website and Social Media for updates

https://rt.cto.mil/ddre-rt/dd-rtl/hfetag/

https://mobile.twitter.com/dodhfetag?lang=en https://www.facebook.com/DoDHFETAG/ https://www.linkedin.com/groups/6786183

Caucus & SubTAG Chairs

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