Creating the Future of Aerospace and Transportation

Technical and Professional Activities
2018

The MITRE Corporation
www.mitre.org
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Books, Journals, and Periodicals</td>
<td>3</td>
</tr>
<tr>
<td>Conference Participation</td>
<td>5</td>
</tr>
<tr>
<td>Honors, Awards, and Recognition</td>
<td>25</td>
</tr>
<tr>
<td>Professional Societies</td>
<td>31</td>
</tr>
<tr>
<td>Committee Participation</td>
<td>37</td>
</tr>
<tr>
<td>Academic and Special Appointments</td>
<td>51</td>
</tr>
<tr>
<td>Book and Journal Editors and Reviewers</td>
<td>53</td>
</tr>
<tr>
<td>Technology Transfer</td>
<td>57</td>
</tr>
<tr>
<td>Index of Contributors</td>
<td>61</td>
</tr>
</tbody>
</table>
INTRODUCTION

It is my great pleasure to introduce MITRE’s nineteenth annual compendium of our staff’s technical and professional activities in aerospace and transportation. This booklet highlights the expertise, capabilities, and research our staff shared in 2018 with other organizations in many ways and venues.

MITRE’s mission is to solve problems for a safer world. Our staff are passionate about advancing our sponsors’ mission capabilities, in this case aerospace and other transportation systems for meeting the growing and broadening demands for efficient and safe travel on the ground, in the air, and in space. They also have broad and deep understanding of transportation system operations, domestically and internationally. They thrive on collaborating with others inside and outside MITRE to innovate solutions and bring them into existence for delivering significant and lasting societal impacts made possible by the improvements in operations.

We greatly value the external engagements and knowledge sharing activities our staff make through technical publications, conferences, committees, professional societies, and academic and special appointments. We are proud of their efforts and results. We celebrate their achievements, including their honors, awards, and recognitions received from our government sponsors and key industry and community stakeholders. We reward them for their inventions, patents, and transfers of MITRE technology to government and industry.
Sponsor mission focus. Innovation. Collaboration. Leadership. Drive. These attributes define MITRE staff, especially those recognized herein. Please join me in acknowledging and celebrating their contributions, achievements, and recognitions. They deserve and have our utmost appreciation!

Gregg A. Leone
Vice President, The MITRE Corporation
Director, Center for Advanced Aviation System Development


Conferences are an important part of our outreach to the global aviation community. MITRE staff participate in many ways: as presenters, moderators, panelists, chairs, and attendees to share their work, learn from other experts, make connections, and inform the aerospace and transportation research communities.

Our Conference Coordinators champion and manage staff participation where we will have a significant presence or exhibition. The conferences for which we have coordinators are listed below, with the respective coordinator. (Note: this list does not include all conferences in which we participate.)

<table>
<thead>
<tr>
<th>Conference</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Line Pilots Association (ALPA) Air Safety Forum</td>
<td>Wallace N. Feerrar</td>
</tr>
<tr>
<td>Air Traffic Control Association (ATCA)</td>
<td>Anuja Verma</td>
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<tr>
<td>• Annual Conference and Exposition</td>
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</tr>
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<td>• Technical Symposium</td>
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<td>Air Transport and Operations Symposium (ATOS)</td>
<td>David R. Maroney</td>
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<tr>
<td>American Association of Airport Executives (AAAE)</td>
<td>Gregory F. Tennille</td>
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<tr>
<td>• Annual Conference and Exposition</td>
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<td>• Aviation Security Summit</td>
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<td>Conference</td>
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<tr>
<td>American Institute of Aeronautics and Astronautics (AIAA) AVIATION Forum</td>
<td>David R. Maroney</td>
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<td>American Institute of Aeronautics and Astronautics (AIAA) AVIATION Forum</td>
<td>Andrew R. Lacher</td>
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<tr>
<td>• Intelligent Systems Workshop</td>
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</tr>
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<td>American Institute of Aeronautics and Astronautics (AIAA) Science &amp; Technology (SciTech) Forum</td>
<td>Lesley A. Weitz</td>
</tr>
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<td>American Meteorological Society (AMS)</td>
<td>Matthew J. Fronzak</td>
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<td>• Annual Meeting</td>
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</tr>
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<td>• Conference on Aviation, Range, and Aerospace Meteorology</td>
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<tr>
<td>Association for Unmanned Vehicle Systems International (AUVSI) XPONENTIAL Conference</td>
<td>Andrew R. Lacher</td>
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<td>Civil Air Navigation Services Organisation (CANSO)</td>
<td>Miyoun L. Dobbs</td>
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<td>• Asia Pacific Conference</td>
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<td>• World ATM Congress</td>
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<td>Congress of the International Ergonomics Association (IEA)</td>
<td>Valerie J. Gawron</td>
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<td>Digital Avionics Systems Conference (DASC)</td>
<td>Hilton Bateman</td>
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<tr>
<td>EASA-FAA International Aviation Safety Conference</td>
<td>Wallace N. Feerrar</td>
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<td>FAA and AUVSI UAS Symposium</td>
<td>Mary A. Minnix</td>
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<tr>
<td>FAA Commercial Space Transportation (CST) Conference</td>
<td>Dean E. Fulmer</td>
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<tr>
<td>FAA Managers Association (FAAMA) Annual Gathering of Eagles</td>
<td>Michael L. Klinker</td>
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<tr>
<td>Conference</td>
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<td>Friends and Partners in Aviation Weather (FPAW)</td>
<td>Matthew J. Fronzak</td>
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<tr>
<td>Human Factors and Ergonomics Society (HFES) Annual Meeting</td>
<td>Valerie J. Gawron</td>
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<tr>
<td>Institute of Electrical and Electronics Engineers (IEEE) Conference on Intelligent Data Understanding</td>
<td>Andrew R. Lacher</td>
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<td>Institute of Navigation (ION):</td>
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<tr>
<td>• GNSS+</td>
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<tr>
<td>• International Technical Meeting</td>
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<td>• Joint Navigation Conference</td>
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<td>• Pacific PNT Conference</td>
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<tr>
<td>• ION/IEEE Position, Location, and Navigation Symposium (PLANS)</td>
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<tr>
<td>International Aviation Safety Symposium by Flight Safety Foundation</td>
<td>Wallace N. Feerrar</td>
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<tr>
<td>International Conference on Applied Human Factors and Ergonomics (AHFE)</td>
<td>Valerie J. Gawron</td>
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<tr>
<td>International Symposium for Personal and Commercial Spaceflight (ISPCS)</td>
<td>Dean E. Fulmer</td>
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<tr>
<td>International Symposium on Aviation Psychology</td>
<td>Valerie J. Gawron</td>
</tr>
<tr>
<td>MIT Lincoln Laboratory Air Traffic Control Workshop</td>
<td>Thomas A. Becher</td>
</tr>
<tr>
<td>Munich Satellite Navigation Summit</td>
<td>Christopher J. Hegarty</td>
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</tbody>
</table>
## Conference Participation

<table>
<thead>
<tr>
<th>Conference</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Air Traffic Controllers Association (NATCA) Communicating for Safety (CFS)</td>
<td>Gregory F. Tennille</td>
</tr>
<tr>
<td>Space Foundation’s Space Symposium</td>
<td>Dean E. Fulmer</td>
</tr>
<tr>
<td>Space Traffic Management Conference (The University of Texas at Austin and Embry-Riddle Aeronautical University)</td>
<td>Dean E. Fulmer</td>
</tr>
<tr>
<td>Transportation Research Board (TRB) Annual Meeting</td>
<td>Michael J. Yablonski</td>
</tr>
<tr>
<td>University of New Mexico’s UAS Technical Analysis and Applications Center (TAAC) Conference</td>
<td>R. Michael Guterres</td>
</tr>
<tr>
<td>USA/Europe Air Traffic Management Research and Development (ATM R&amp;D) Seminar</td>
<td>Craig R. Wanke</td>
</tr>
</tbody>
</table>
Conference Participation


“Air Traffic Management (ATM) [Track 3], Track Co-Chair, Ralf H. Mayer, 2018 Integrated Communications, Navigation, and Surveillance (ICNS) Conference, April 2018, Herndon, VA.
Conference Participation

“Airspace Considerations in Spaceport Location Planning,” Scott Rosenbloom and Michael T. Wells, presented at the Transportation Research Board (TRB) 10th National Aviation System Planning Symposium, May 2018, Anchorage, AK.


“Benefits of Reducing National Playbook Flight Routing via Advanced Flight-Specific Trajectories (AFST),”


Conference Participation


“Fusion with EMS,” Eugene A. Mwendwa and Seth A. Ransohoff, presented at the GE Aviation Waypoint, March 2018, Dallas, TX.


Conference Participation


Conference Participation

“If You Think Infrastructure is Mundane, You’re Not Paying Attention,” Dennis A. Sawyer, Panel Moderator, Air Traffic Control Association (ATCA) Annual Symposium and Conference, October 2018, National Harbor, MD.

“Information Management (Session H),” Session Chair, Ralf H. Mayer, 2018 Integrated Communications, Navigation, and Surveillance (ICNS) Conference, April 2018, Herndon, VA.


“Interval Management: A Future Air Traffic Concept to Increase Efficiency in the National Airspace System,” Lesley A. Weitz, presented at a Rutgers University Mechanical and Aerospace Engineering Graduate Seminar, November 2018, New Brunswick, NJ.

“Levels of Automation–A Discussion,” Andrew R. Lacher, Tracy L. Sanders, and Brock J. Lascara, presented at the 2nd Annual Symposium–At the Intersection, October 2018, Blacksburg, VA.

Conference Participation


Conference Participation


“Resiliency Developments in Civil Aviation,” **Christopher J. Hegarty**, presented at the Center for Strategic and International Studies (CSIS) Civil Space Conference, January 2018, Washington, DC.


Conference Participation


“Urban Air Mobility,” Andrew R. Lacher, Panelist, NuAir UAS Symposium, September 2018, Verona, NY.


Technical Exchange Meetings

Technical Exchange Meetings (TEM) are forums for exchanging ideas, starting a new initiative, learning about a new technology, sharing resources, or collaborating across programs and organizational boundaries. We sponsored, co-sponsored, or presented at four TEMs in 2018:

“Aviation Security–Supply Chain Integrity Panel Presentation,” Uma D. Ferrell, MITRE’s Inaugural Supply Chain Integrity Technical Exchange Meeting, April 2018, McLean, VA.

A Risk-Based Approach for sUAS Airworthiness and Safety Certification Technical Exchange Meeting, Jeffrey L. Breunig and Joyce M. Forman, George Mason University Center for Air Transportation Systems Research, March 2018, Fairfax, VA.


Sharing Analytical Results with Sponsors or Partners through Web Portals Technical Exchange Meeting, December 2018, McLean, VA.
Special Honors and Recognition

**William J. Penhallegon** received an IMPALA (Interval Management Project Manager Award for Literally Anything) award from the Federal Aviation Administration for his indefatigable and tireless efforts for leading and completing the Advanced Interval Management (A-IM) Concept of Operations, February 2018.

The Department of Aerospace Engineering at Texas A&M University congratulated **Lesley A. Weitz** on being selected as an Outstanding Young Aerospace Engineer to their Aerospace Alumni Academy for 2018–2019, September 2018.

**Breanna G. Hall** was one of three MITRE employees to be named a Modern-Day Technology Leader during the Black Engineer of the Year Award Science, Technology, Engineering and Math Global Competitiveness Conference Modern-Day Technology Luncheon, February 2018.

Most Promising Engineer Award was presented to **Hamza Syed** during the Black Engineer of the Year Award Science, Technology, Engineering and Math Global Competitiveness Conference Gala Awards Dinner, February 2018.
RTCA presented its Significant Contributor Award to **Clark R. Lunsford** for his contributions on Special Committee 206: Aeronautical Information Services and Meteorological Data Link Services in producing DO-369: “Guidance for the Usage of Data Linked Forecast and Current Wind Information in Air Traffic Management (ATM) Operations” during the 2018 Global Aviation Symposium Awards Luncheon, June 2018.

RTCA presented its Significant Contributor Award to **Kelly R. Markin** for his contributions on Special Committee 228: Minimum Operational Performance Standards for Unmanned Aircraft Systems in producing “WP-3 and WP-4, Phase Two White Papers for DAA MOPS and C2 MOPS” during the 2018 Global Aviation Symposium Awards Luncheon, June 2018.

RTCA presented its Outstanding Leadership Award to **Edward A. Lester** for his contributions on Special Committee 228: Minimum Operational Performance Standards for Unmanned Aircraft Systems in producing DO-365: “Detect and Avoid Minimum Operational Performance Standards Phase 1 (DAA MOPS)” during the 2018 Global Aviation Symposium Awards Luncheon, June 2018.
Sara A. Wilkins was selected by the Transportation Research Board Executive Committee to receive Fred Burggraf Award, which recognizes excellence in transportation research by researchers 35 years or younger. This award was in recognition of her paper “Examining Heads Down Time in Transportation: A Case Study in Single Pilot General Aviation Operations.” July 2018.

Best Paper Awards


Letters of Commendation

From the Federal Aviation Administration in appreciation for the MITRE team’s highly successful non-TFDM workshop. Our internal team members participated in the workshop, filled in the gaps, and provided valuable information to the Subject Matter Experts, April 2018.

From the Federal Aviation Administration in appreciation of Shweta P. Mulcare’s contributions to the Go-Around Study working group session in leading the team to a profitable end, July 2018.
From the Federal Aviation Administration in appreciation for another outstanding job in supporting the FAA and specifically iTBO. The PBN NIWG meeting Marshall E. Koch, Paul V. MacWilliams, and Elida C. Smith hosted went extremely well. In particular, the demo proved very beneficial in helping Industry better understand the capabilities and therefore the challenges and complexities we face in trying to roll out iTBO, August 2018.

From the Federal Aviation Administration in appreciation of the MITRE TARGETS teams’ response to questions and quandaries. The Tuesday 5.5 test group addresses user needs and suggestions in addition to correcting a critical error. In my opinion, that process and honest respect for the user is already resulting in a productive tool vs. one that “works,” September 2018.

From the Federal Aviation Administration in appreciation for Dongsong Zeng’s outstanding technical leadership and international coordination towards the development and harmonization of the DataComm standards, September 2018.

From the Federal Aviation Administration in appreciation for the MITRE team’s support of the Part 101 Aviation Rulemaking Committee (ARC) Final Recommendations Report, September 2018.
From the Federal Aviation Administration in recognition of Michael Borowski’s support for the 3T portfolio as the portfolio relates directly to the high visibility TBO initiatives that FAA has identified with stakeholders as crucial to the future of the NAS, September 2018.

From the Treasury Department in appreciation for the MITRE team’s dedicated work in support of the Task Force on the U.S. Postal System (the Task Force). The work was analytical in nature, and the more than 500 pages shared with the Task Force members enabled us to deliver our findings and recommendations to the White House, as prescribed by the April 2018 Executive Order on the topic, October 2018.

From the Federal Aviation Administration in appreciation for Jon I. Parker’s contributions in moving the ARIA project forward, October 2018.

From Honeywell in appreciation of William J. Penhallegon’s and H. Peter Stassen’s contributions on the AIM CONOPS. It’s clear, easy to read and understand, and presents a comprehensive picture of ground and airborne TBO system concepts operating in a fully integrated environment, October 2018.

From the Federal Aviation Administration in appreciation of Brian M. Crow’s contributions on the South/Central Florida Metroplex Project, November 2018.
Honors, Awards, and Recognition

From the Federal Aviation Administration in appreciation of the MITRE team’s work on TARGETS 550. Thank you to all the effort being put forth on the reference software, December 2018.

Patents


Fellows

- **Human Factors and Ergonomics Society**
  Valerie J. Gawron

- **The Institute of Electrical and Electronics Engineers**
  Christopher J. Hegarty

- **The Institute of Navigation**
  Ronald Braff
  Christopher J. Hegarty

- **International Ergonomics Association**
  Valerie J. Gawron

- **Royal Aeronautical Society**
  Stephane L. Mondoloni

Associate Fellows

- **American Institute of Aeronautics and Astronautics**
  Thomas A. Becher
  Valerie J. Gawron
  Christopher J. Hegarty
  Andrew R. Lacher
  David R. Maroney
  S. Vincent Massimini
  Ralf H. Mayer
  Stephane L. Mondoloni
  Craig R. Wanke
  Lesley A. Weitz
  Andrew D. Zeitlin
Professional Societies

**Memberships**

Air Force Association (AFA)

Air Line Pilots Association, International (ALPA)

Air Traffic Control Association (ATCA)

Aircraft Owners and Pilots Association (AOPA)

American Association for the Advancement of Science

American Association of Airport Executives (AAAE)

American Association of University Women (AAUW)

American Helicopter Society (AHS)

American Institute of Aeronautics and Astronautics (AIAA)
  - Air Transportation Systems
  - Life Sciences and Systems (LLS) CoS

American Mathematical Society (AMS)

American Mensa

American Meteorological Society (AMS)

American Public Transport Association

American Physical Society (APS)

American Society for Quality (ASQ)

American Society of Civil Engineers (ASCE)

American Society of Safety Engineers (ASSE)
American Statistical Association (ASA)
APMG International
Armed Forces Communications and Electronics Association (AFCEA)
Association for Aviation Psychology (AAP)
Association for Computing Machinery (ACM)
Association for Unmanned Vehicle Systems International (AUVSI)
Certified Consulting Meteorologist (CCM)
Certified Information Systems Security Professional (CISSP)
The Data Warehousing Institute (TDWI)
Experimental Aircraft Association (EAA)
Federal Aviation Administration Managers Association (FAAMA)
Flight Safety Foundation
Friends and Partners in Aviation Weather
Human Factors and Ergonomics Society (HFES)
Information Systems Audit and Control Association (ISACA)
Institute for Operations Research and the Management Sciences (INFORMS)
Professional Societies

Institute of Electrical and Electronics Engineers (IEEE)
  • Communications Society (COMSOC)
  • Computer Society (CS)
  • Industrial Electronics Society (IES)
  • Industry Applications Society (IAS)
  • Women in Engineering (WIE)
Institute of Navigation (ION)
International Council on Systems Engineering (INCOSE)
International Federation of Automatic Control (IFAC)
International Information System Security Certification Consortium (ISC)²
International Institute of Forecasters (IIF)
International Society of Air Safety Investigators (ISASI)
International Union of Radio Science (URSI)
Military Cyber Professionals Association (MCPA)
National Air Traffic Controllers Association (NATCA)
National Association of Flight Instructors (NAFI)
National Safety Council (NSC)
The Ninety-Nines: International Organization of Women Pilots
Project Management Institute (PMI)
Royal Aeronautical Society (RAeS)
Royal Institute of Navigation (RIN)
Professional Societies

RTCA, Inc.
SAE International (SAE)
Signal Corps Regimental Association (SCRA)
Society of Automotive Engineers (SAE)
Society of Women Engineers (SWE)
Transportation Research Board (TRB)
Transportation Research Forum (TRF)
Virginia Helicopter Association (VHA)
Virginia Society of Professional Engineers (VSPE)
Whirly Girls–International Women Helicopter Pilots
Women in Aerospace (WIA)
Women in Aviation, International (WAI)
Women Military Aviators (WMA)
Young Aviation Professionals (YAP)

Honor Societies

Beta Gamma Sigma (Business)
Eta Kappa Nu (Electrical and Computer Engineers)
Omega Rho (International Operations Research)
Phi Beta Kappa (Liberal Arts and Sciences)
Sigma Pi Sigma (Physics)
Tau Beta Pi (Engineering)
Professional Societies

**Users Groups**

ACM Special Interest Group on Computer-Human Interaction (SIGCHI)

Airline Group of the International Federation of Operational Research Societies (AGIFORS)

AirTOp User Group (AUG)

Americas & Pacific Rim TAAM Users Group (APTUG)

BADA User Group (BUG)

Worldwide TAAM Users Group (WWTUG)
American Association of Airport Executives (AAAE)

- Operations, Safety, and Planning Committee
  Cheryl R. Andrews

American Institute of Aeronautics and Astronautics (AIAA)

- Aerospace Sciences Group
  Lesley A. Weitz, Deputy Director

- Program Committees
  - Transformational Flight
    David R. Maroney
  - Unmanned Systems
    Andrew R. Lacher
    David R. Maroney

- Technical Activities Committees
  - Aircraft Technology Integration and Operations (ATIO) Group
    David R. Maroney, Deputy Director
  - Air Transportation Systems
    David R. Maroney, Emeritus Member
  - Complex Aerospace Systems Exchange (CASE)—Executive Committee
    David R. Maroney
Committee Participation

- **Guidance, Navigation, and Control**  
  Lesley A. Weitz, Chair

- **Intelligent Systems Technical Committee**  
  Andrew R. Lacher

- **Modeling and Simulation**  
  Christine P. Taylor

**American Institute of Aeronautics and Astronautics (AIAA) and Institute of Electrical and Electronics Engineers (IEEE)**

- Digital Avionics Systems Conference (DASC)  
  Uma D. Ferrell, Technical Program Committee, Session Co-Chair

**American Meteorological Society (AMS)**

- Aviation, Range, and Aerospace Meteorology (ARAM)  
  Matthew J. Fronzak, Vice Chairman

- Aviation, Range, and Aerospace Meteorology (ARAM) Conference  
  Michael Robinson

**European Workshop on Industrial Computer Systems, TC7**

- SAFECOMP 2018—International Conference on Computer Safety, Reliability and Security  
  Uma D. Ferrell

**EU-U.S. Cooperation on Satellite Navigation**

- Working Group C—Service Evolutions Subgroup (Previously called ARAIM Technical Subgroup)  
  Young C. Lee
Federal Aviation Administration (FAA)

- **1090 MHz Spectrum Risk Assessment Team**
  Stanley R. Jones

- **Air Carrier Training Aviation Rulemaking Committee (ACT ARC) Flight Path Management Working Group**
  William A. Miller

- **Collaborative Decision Making (CDM) Group**
  - *Weather Evaluation Team (WET)*
    Matthew J. Fronzak

- **Drone Advisory Committee Subcommittee (DACSC)**
  Hassan Shahidi

- **Drone Tracking and Identification Aviation Rulemaking Committee (ARC)**
  Hassan Shahidi

- **Equip 2020**
  Arthur D. Branch Jr.
  Sean F. McCourt

- **Flight Standards: CNS Task Force** *(Joint with Airlines for America)*
  Michael R. Cramer
  Sean F. McCourt
  William A. Miller
Committee Participation

- **General Aviation Issues Analysis Team (GA-IAT)**
  Jeffrey P. Mittelman, Tri-chair

- **Performance-Based Operations Aviation Rulemaking Committee (PARC)**
  - *Communications Working Group*
    Dongsong Zeng
  - *Navigation Working Group*
    Michael R. Cramer, Chair

- **Research, Engineering, and Development Advisory Committee (REDAC)**
  - *REDAC Human Factors Subcommittee*
    Christopher T. DeSenti
  - *REDAC NAS Operations Subcommittee*
    Emily K. Stelzer
  - *REDAC Subcommittee for Aircraft Safety*
    Andrew R. Lacher

- **Space-Based ADS-B Support Team**
  Stanley R. Jones

- **Unmanned Aircraft Safety Team (UAST)**
  Hassan Shahidi
  Anuja Verma

- **Unmanned Aircraft System in Controlled Airspace Aviation Rulemaking Committee**
  Kelly R. Markin
  Debra A. Moch-Mooney
Committee Participation

- Unmanned Aircraft Systems Executive Committee (DHS, DoD, FAA, NASA)
  - *Science and Research Panel (SARP)*
    Brian C. Patterson

*Federal Aviation Administration and EUROCONTROL*

- USA/Europe Air Traffic Management R&D Seminar
  Craig R. Wanke

*Human Factors and Ergonomics Society*

- A. R. Lauer Safety Award Committee
  Valerie J. Gawron, Chair

- Aerospace Systems Technical Group
  Valerie J. Gawron
  David A. Domino
  Scott H. Mills
  Emily K. Stelzer

- Cognitive Engineering and Decision Making Technical Group
  Emily K. Stelzer

- Surface Transportation Technical Group
  Valerie J. Gawron

*International Telecommunication Union— Radiocommunication Sector (ITU-R)*

- Efficient Orbit/Spectrum Utilization for FSS and BSS (WP 4A)
  Michael Tran
Committee Participation

- Efficient Orbit/Spectrum Utilization for MSS and RDSS (WP 4C)
  Michael Tran

- MMS/GMDSS: Aeronautical Mobile Service and Radiodetermination (WP 5B)
  Michael Tran

- Remote Sensing Systems (WP 7C)
  Michael Tran

- Space Radiocommunication Applications (WP 7B)
  Michael Tran

**National Academy of Sciences**

- Assessing the Risk of Unmanned Aircraft Systems
  Andrew R. Lacher

**National Aviation Authorities**

- Joint Authorities for Rulemaking on Unmanned Systems (JARUS)
  Brian C. Patterson

**National Business Aviation Association (NBAA)**

- Safety Committee, Safety Assurance Working Group
  Jeffrey P. Mittelman

**Regional Airline Association**

- Flight Technology Committee
  Todd M. Stock
Committee Participation

RTCA, Inc.

- Forum for Aeronautical Software
  Uma D. Ferrell

- NextGen Advisory Committee (NAC)
  Gregg A. Leone

- NextGen Advisory Committee Joint Analysis Team (JAT)
  Debra A. Pool

- NextGen Advisory Committee (Subcommittee Member)
  Dennis A. Sawyer

- Policy Board
  Gregg A. Leone

- Program Management Committee (PMC)
  Christopher J. Hegarty, Chair

(See also RTCA, Inc., Standards Committee Memberships.)

Transportation Research Board (TRB)

- Airfield and Airspace Capacity and Delay (AV060)
  Marcus Smith

- Aviation Economics and Forecasting Committee (AV040)
  Katherine T. Harback, Chair

- Aviation System Planning (AV020)
  Ehsan Esmaeilzadeh
  Michael T. Wells
Committee Participation

- Committee on Intergovernmental Relations in Aviation (AV010)
  - Commercial Space Transportation Subcommittee
    Cheryl R. Andrews
    Marcus Smith, Chair

- Common Performance Metrics for Airport Infrastructure and Operational Planning (ACRP 03-41)
  Marcus Smith

- Environmental Impacts of Aviation (AV030)
  Anuja A. Mahashabde

- Standing Committee on Aircraft/Airport Compatibility (AV070)
  Neal A. Westlund

- Standing Committee on Airfield and Airspace Capacity and Delay (AV060)
  Neal A. Westlund

- Standing Committee on Light Commercial and General Aviation (AV080)
  Neal A. Westlund

Transportation Research Forum (TRF)

- Chicago Chapter
  Laurence F. Audenaerd, Vice President, Programs

Women in Aerospace (WIA)

Emily K. Stelzer
Anuja Verma
STANDARDS COMMITTEE MEMBERSHIPS

3rd Generation Partnership Project (3GPP)
   Izabela L. Gheorghisor

ARINC Industry Activities (IA) (An SAE-ITC Industry Program)
   - Airlines Electronic Engineering Committee (AEEC)
     - Data Link (DLK) Systems Subcommittee
       Dongsong Zeng
     - Flight Management Systems (FMS) Subcommittee
       William A. Miller
     - Navigation Database (NDB) Subcommittee
       William A. Miller
     - Systems Architecture and Interfaces (SAI) Subcommittee
       William A. Miller

ASTM International
   - F38 Unmanned Aircraft Systems
     Arthur D. Branch Jr.
     Jeffrey L. Breunig
     Matthew T. DeGarmo
     R. Michael Guterres
     Andrew R. Lacher
     Edward A. Lester
     Brian C. Patterson
Committee Participation

- AC377 Autonomy Design and Operations in Aviation
  Andrew R. Lacher

*European Organisation for Civil Aviation Equipment (EUROCAE)*

- WG-62 GALILEO
  Christopher J. Hegarty
- WG-92 VDL Mode 2 Standards Working Group
  Dongsong Zeng
- WG-108 Internet Protocol Suite
  Dongsong Zeng

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- Aeronautical Communications Panel Working Group I
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- Air Traffic Management Requirements and Performance Panel (ATMRPP)
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National Academy of Engineering

- Aviation Safety Assurance Committee
  Craig R. Wanke

RTCA, Inc.

- RTCA/EUROCAE Combined Surveillance Committee (CSC)
  Clark R. Lunsford

- RTCA/EUROCAE Forum on Aeronautical Software (FAS)
  John C. Angermayer

- SC-147 Traffic Alert & Collision Avoidance System (TCAS)
  Edward A. Lester
  Andrew D. Zeitlin

- SC-159 Navigation Equipment Using the Global Navigation Satellite System (GNSS)
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  M. Bakry El-Arini
  James P. Fernow, WG-2
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- **SC-214 Standards for Air Traffic Data Communication Services**
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  - Stephen L. Giles
  - Daniel B. Kirk
  - Dongsong Zeng, Secretary
- **SC-216 Aeronautical Systems Security**
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- **SC-223 Internet Protocol Suite (IPS) and AeroMACS**
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  Izabela L. Gheorghisor
  Stephen L. Giles
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- **SC-227 Standards of Navigation Performance**
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  William A. Miller

- **SC-228 Minimum Operational Performance Standards for Unmanned Aircraft Systems**
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  Joseph M. Boyd
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  Leonid Globus
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- **SC-233 Addressing Human Factors/Pilot Interface Issues for Avionics**
  Valerie J. Gawron
Teaching Positions

**DePaul University**
- Visiting Scholar
  Laurence F. Audenaerd

**George Washington University School of Engineering and Applied Science**
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  Andrew R. Lacher

**Northwestern University**
- Adjunct Faculty
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- Visiting Professor in Remotely Piloted Aircraft Systems
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Courses Taught Through MITRE

“Safety Management Systems (SMS) Overview,”
May 2, 2018, Newark, NJ.


Other Courses Taught

“DO-178C: Software Considerations in Airborne Systems and Equipment Certification,” John C. Angermayer and Kent V. Hollinger. RTCA Training, RTCA, Inc.: Washington, DC, March, June, September and December 2018; Plano, TX, November 2018; St. Louis, MO, November 2018.

“DO-178C: Software Considerations in Airborne Systems and Equipment Certification,” John C. Angermayer and Uma D. Ferrell, Mesa, AZ, August 2018.


The Aeronautical Journal
Amal Srivastava, Reviewer

American Institute of Aeronautics & Astronautics, Inc.

- *Journal of Aerospace Information Systems*
  Craig R. Wanke, Reviewer

- *Journal of Air Transportation*
  Matthew J. Fronzak, Reviewer
  Stephane L. Mondoloni, Reviewer
  Shin-Lai Tien, Reviewer
  Craig R. Wanke, Associate Editor
  Lesley A. Weitz, Reviewer

- *Journal of Aircraft*
  Craig R. Wanke, Reviewer

- *Journal of Guidance, Control, and Dynamics*
  Shin-Lai Tien, Reviewer
  Erik P. Vargo, Reviewer
  Craig R. Wanke, Reviewer
  Lesley A. Weitz, Reviewer

American Society for Quality

- *Software Quality Professional*
  Uma D. Ferrell, Editorial Review Board Member and Technical Book Reviewer
Canadian Journal of Civil Engineering
Panta Lucic, Reviewer

Ergonomics in Design: The Quarterly of Human Factors Applications
Valerie J. Gawron, Editorial Board

European Journal of Operational Research
Panta Lucic, Reviewer
Craig R. Wanke, Reviewer

Christopher J. Hegarty, Co-series Editor

Institute of Electrical and Electronics Engineers
- Aerospace and Electronics Systems
  R. Michael Guterres, Reviewer
- Transactions on Aerospace and Electronic Systems
  Brian Bian, Reviewer
  Izabela L. Gheorghisor, Reviewer
  Young C. Lee, Reviewer
- Transactions on Intelligent Transportation Systems
  Craig R. Wanke, Reviewer

International Academy of Astronautics
- Journal of Acta Astronautica
  Lesley A. Weitz, Reviewer
- **International Journal of Aerospace Psychology**
  Valerie J. Gawron, Domain Editor
  Emily K. Stelzer, Reviewer

- **Journal of Navigation (Royal Institute of Navigation)**
  Christopher J. Hegarty, Editorial Advisory Board

- **Journal of the Transportation Research Board**
  Laurence F. Audenaerd, Reviewer

- **Journal of the Transportation Research Forum**
  Laurence F. Audenaerd, Reviewer

- **NAVIGATION: Journal of the Institute of Navigation**
  Christopher J. Hegarty, Associate Editor
  Young C. Lee, Reviewer

- **Transportation Research Part C: Emerging Technologies: An International Journal**
  Shin-Lai Tien, Reviewer

- **Wiley**
  - *Journal of Software: Evolution and Process*
    Uma D. Ferrell, Reviewer
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Here is a list of recent aviation technologies and capabilities that MITRE transferred or is in the process of transferring:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Year</th>
<th>Recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Analysis Packages for Big Data Analytics</td>
<td>FY18</td>
<td>Industry</td>
</tr>
<tr>
<td>Risk Assessment and Analysis Model for UAS Operations within the Singapore National Airspace</td>
<td>FY18</td>
<td>Civil Aviation Authority of Singapore (CAAS)</td>
</tr>
<tr>
<td>Open Source Software Community for Accelerating Use of SWIM Data</td>
<td>FY18–FY19</td>
<td>FAA and Industry</td>
</tr>
<tr>
<td>NAS-Wide Real-Time Monitoring and Alerting Capability</td>
<td>FY18–FY19</td>
<td>FAA</td>
</tr>
<tr>
<td>Mobile Instrument Flight Rules Clearance Delivery</td>
<td>FY18–FY19</td>
<td>FAA and Industry</td>
</tr>
<tr>
<td>Airport Construction Reporting</td>
<td>FY18–FY19</td>
<td>FAA</td>
</tr>
<tr>
<td>PBN Flight Procedures Design Criteria</td>
<td>FY18–FY20</td>
<td>FAA</td>
</tr>
<tr>
<td>Digital Co-Pilot Prototype</td>
<td>FY18–FY20</td>
<td>FAA and Industry</td>
</tr>
<tr>
<td>Threaded Track/Flight Story Planned for</td>
<td>Planned for FY19–FY20</td>
<td>FAA</td>
</tr>
</tbody>
</table>
Index of Contributors

Amefia, Koffi A. 18
Andrews, Cheryl R. 37, 44
Angermayer, John C. 47, 49, 52
Arnstein, Donald S. 49
Ashley, John C. 13
Audenaerd, Laurence F. 17, 44, 48, 51, 55
Baraban, Dmitri V. 13, 22
Bateman, Hilton (Bill) 6, 10
Bean, Kevin W. 22, 47
Becher, Thomas A. 7, 18, 31
Bian, Brian 14, 54
Bodie, Steven R. 14, 27
Bone, Randall S. 9, 48
Borowski, Michael 29
Bowman, D. Stuart 48
Box, Francis 13, 14, 27, 49
Boyd, Joseph M. 49
Braff, Ronald 31
Branch Jr., Arthur D. 11, 17, 39, 45
Brandt II, John E. 18
Breunig, Jeffrey L. 11, 17, 24, 45, 49
Britan, Clark D. 30
Carson, J. William 48
Cashin, Timothy P. 12, 46
Chaloux, David A. 20
Chen, Angela 14, 27
Chen, Shuo 30
Chong, Ronald S. 30
Chou, Chih-sheng (Jason) 4, 13
Coats, Paden J. 9, 21
Colavito, Anthony P. 15, 17
Cooper, Jr., Wayne W. 13
Cramer, Michael R. 39, 40, 49
Crow, Brian M.  29
Day, David S.  22
DeArmon, James S.  10, 20
DeGarmo, Matthew T.  45
DeSenti, Christopher T.  40
Diffenderfer, Paul A.  12, 22, 30
Dobbs, Miyoun L. (Mimi)  6
Domino, David A.  41, 48
El-Arini, M. Bakry  12, 47
Enea, Gabriele  9, 18
Esmaeilzadeh, Ehsan  43
Estes, Steven L.  15, 19
Feerrar, Wallace N.  5, 6, 7
Fernow, James P.  47
Ferrell, Uma D.  12, 17, 24, 38, 43, 52, 53, 55
Forman, Joyce M.  11, 17, 24
Foster, John G. (Glenn)  10, 11
French, Michael R.  19
Fronzak, Matthew J.  6, 7, 38, 39, 53
Fulmer, Dean E.  6, 7, 8, 16, 20
Gawron, Valerie J.  6, 7, 15, 17, 23, 31, 41, 49, 52, 54, 55
Gentry, Jennifer L.  18
Gheorghisor, Izabela L.  45, 48, 49, 54
Giles, Stephen L.  48, 49
Globus, Leonid  13, 14, 27, 49
Goh, Juliana J.  10
Guterres, R. Michael  8, 21, 45, 54
Hadjimichael, Michael  11, 17
Hall, Breanna G.  25
Hanson, Susan S. M.  10
Harback, Katherine T.  43
Hegarty, Christopher J.  7, 20, 21, 22, 31, 43, 46, 47, 52, 54, 55
Heitin, Simon H.  13
Helleberg, John R.  15, 19
Hokit, Mary E.  20
Hollinger, Kent V. 15, 19, 21, 52
Huberdeau, Mark W. 14
Jaranson, Kyle A. 20
Jeffrey P. Mittelman 42
Jones, Stanley R. 39, 40, 48
Katkin, Raphael D. 48
Kirk, Daniel B. 48
Klinker, Michael L. 6
Koch, Marshall E. 28
Lacher, Andrew R. 6, 7, 9, 10, 16, 19, 22, 31, 37, 38, 40, 42, 45, 46, 51
Larsen, Daniel J. 9
Lascara, Brock J. 16, 21, 48
Lash, William C. 17
Lee, Young C. 14, 38, 54, 55
Leone, Gregg A. 43
Lester, Edward A. (Ted) 24, 26, 45, 47, 49
Liu, Sheng S. 3, 9
Long, Kevin M. 12, 15, 19, 22
Lopez, Martin A. 15
Luc, Timothy S. 14, 27
Lucic, Panta 54
Lunsford, Clark R. 26, 47, 48
MacWilliams, Paul V. 12, 28
Mahashabde, Anuja A. 44
Markin, Kelly R. 26, 40
Maroney, David R. 5, 6, 23, 31, 37, 51
Martinez, Carlos E. (Charlie) 22
Massimini, S. Vincent 12, 15, 23, 31
Mayer, Ralf H. 9, 14, 16, 31
McCourt, Sean F. 39
McQueston, John 10
Mendolia, Andrew S. 9
Menzenski, Joseph G. 13, 19
Miller, William A. (Sam) 39, 45, 46, 49
Mills, Scott H. 41
Minnix, Mary A.  6
Mittelman, Jeffrey P.  14, 40, 42
Moch-Mooney, Debra A.  40
Mondoloni, Stephane L.  9, 13, 31, 46, 53
Mulcare, Shweta P.  27
Mwendwa, Eugene A.  14
Myles, Chad R.  19
Nene, Vilas  30
Nelson, Gregory M.  12
Niles, Frederick A. (Rick)  12, 13, 18
Noe, Michael T.  11
Odeh, Ali M.  12, 14, 21
Orrell, Gregory L.  15, 17, 21
Osborne, Steven T.  18
Pan, Grant  3, 20
Parker, Jon I.  29
Patterson, Brian C.  24, 41, 42, 45, 49
Penhallegon, William J.  11, 25, 29, 48
Pollack, Matthew E.  15, 19
Pool, Debra A.  43
Priess, Stephanie A.  19, 48
Quezada, Marco  15, 19
Rabinowitz, David L.  15
Ransohoff, Seth A.  14
Richkus, Jacob  30
Robinson, Michael  38
Sanders, Tracy L.  3, 16, 19
Sawyer, Dennis A.  16, 43
Sgorcea, Roland M.  9, 18
Shahidi, Hassan  39, 40
Smith, Elida C. (Elly)  28
Smith, Marcus  43, 44
Snow, Richard E.  14, 27
Spencer, Thomas L.  19
Srivastava, Amal  3, 7, 16, 20, 53
St. Clair, Thomas J.  3, 16
Stalnaker, Sarah E.  21
Stassen, H. Peter  11, 29, 48
Stein, Jeffrey L.  19
Stelzer, Emily K.  30, 40, 41, 44, 55
Stevens, Ronald K.  10
Stewart, Timothy B.  3, 9, 11
Stock, Todd M.  42
Strain, Robert C.  18, 21, 48
Swol, Christopher D. (Doug) 21
Syed, Hamza  25
Symionow, William L.  18
Tao, Zheng  17
Taylor, Christine P.  3, 4, 9, 38
Tennille, Gregory F.  5, 8
Tien, Shin-Lai (Alex)  4, 53, 55
Timberlake, John M.  18
Tran, Michael  41, 42
Tuomey, David M.  30
Vargo, Erik P.  4, 53
Verma, Anuja  5, 11, 40, 44
Wanke, Craig R.  3, 4, 8, 9, 31, 41, 47, 53, 54
Weiss, William E.  11
Weitz, Lesley A.  6, 11, 16, 23, 25, 31, 37, 38, 48, 51, 53, 54
Welch, Madison H.  18
Wells, Michael T.  10, 43
Westlund, Neal A.  44
Wilkins, Sara A.  3, 12, 13, 22, 27
Yablonski, Michael J.  8
Zeitlin, Andrew D.  31, 47
Zeng, Dongsong  13, 28, 40, 45, 46, 47, 48, 49
Zheng, Guijin  12
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