



## CALL FOR PAPERS

### IMPORTANT DATES

**Abstract Deadline**

February 10, 2025

**Abstract Acceptance**

March 10, 2025

**Full Paper Deadline**

May 5, 2025

**Paper Acceptance**

June 2, 2025

**Camera-ready Deadline**

June 30, 2025

**Conference Dates**

**Tutorials**

September 14-15, 2025

**Conference**

September 16-18, 2025

### ORGANIZERS

**General Chair**

**Dr. Steve VanderLeest**

The Boeing Company, USA

**Tech Program Chairs**

**Prof. Björn Annighöfer**

University of Stuttgart, Germany

**Mr. Scott Crawford**

Collins Aerospace, USA

**Registration Chair**

**Ms. Claire Folkerts**

Conference Catalysts, USA

The 44<sup>th</sup> AIAA/IEEE Digital Avionics Systems Conference (DASC) continues a rich tradition as the preeminent R&D conference in the field of digital avionics, offered by Digital Avionics Technical Committee (DATC) and co-sponsored by the American Institute of Aeronautics and Astronautics (AIAA) and the Institute of Electrical and Electronics Engineers (IEEE).

As the world's leading conference on digital avionics technologies, we offer comprehensive topics in a diverse and collaborative environment for educational and professional opportunities. We are confident that you will have a memorable, inspiring, and educational experience.

### CONFERENCE THEME:

#### AVIONICS' RESPONSIBILITY FOR SAFE AND SUSTAINABLE NEXT GENERATION AEROSPACE OPERATIONS

Digital avionics are the foundation for the kind of aviation and space flight we feel familiar with today, but aerospace finds itself in an era of tremendous changes: societal demands and geopolitical changes are transforming aerospace towards higher customization, more autonomy, greener operation and faster adaptability. Digital avionics systems are the core enablers for many of the new technologies, functions, and operations necessitated by these changes. Furthermore, avionics systems will need to undergo a transformation towards reduced carbon footprint, higher calculation power, lower latency, and higher flexibility - all while maintaining safety and security levels and decreasing certification times: a huge responsibility for the digital avionics systems of the future. The 44<sup>th</sup> DASC will investigate the responsibility of digital avionics for the next generation of air and space vehicles to come. We provide the forum to present solutions making aerospace transformation possible, analyze open issues, and discuss disruptive ideas.

You are invited to present your research addressing current and future challenges of avionics systems and exchange diverse perspectives with the world's leading experts in the field.

#### Emphasized are methods, tool, systems and functions for:

- » Increased performance
- » Reduced resource utilization
- » Fast qualification and requalification
- » Customization, adaptivity, flexibility
- » Safe & secure operation in hostile environment
- » Utilization of AI, high-performance computing (HPC) quantum computing, etc.

**Other Topics:** Original research on technical challenges, gaps and approaches to enhance any of the challenges of digital avionics (topics see next page) are welcome.

**Papers, Panels, Education, and Workshops:** The Technical and Professional Education Programs will incorporate research & application papers and relevant tutorials from researchers, innovators, engineers, users, and designers. Plenary panel discussions and keynote presentations by leaders in industry, government and academia will discuss topics that are shaping forefront developments.

Check our website for periodic updates: <http://www.dasconline.org>.

## FIELDS OF INTEREST

The DASC encourages leading research & applications of the following fields but is open to other related topics as well.

### AIR TRAFFIC MANAGEMENT (ATM)

Predictive automation; Cognitive radios for spectrum demand; Traffic flow management; Command and control; Separation management; Unmanned aircraft management; Simulation and modeling.

### AVIONICS PLATFORMS

Integrated Modular Avionics (IMA); Configuration, verification, and certification; Design and optimization; Data network; Modularity, scalability balance; High-performance computing; Spacecraft and satellite platforms; New IMA applications; Reconfiguration and adaptivity.

### AVIONICS TECHNOLOGIES

Artificial Intelligence; Big data; COTS utilization; Safety-critical software techniques; Open-Source, HPC; Quantum computing; Cloud services; Always connected; Low power; Novel hardware and software; Cryogenic electronics; High power electronics.

### COMMUNICATIONS, NAVIGATION, AND SURVEILLANCE AND INFORMATION NETWORKS

RF and optical tech; Network technology; Air/ground and air/air datalink; space CNS; Satellite communication; GNSS; Alternative PNT; Performance-based navigation; Collision avoidance; Cloud services; Contingency management.

### CYBER, SYSTEMS, AND SOFTWARE (-ENGINEERING)

Modeling, design, testing, assessment, certification of air and space systems; Architectures; Processes; Safety; Cyber-security; Qualification automation; Digital certification; Formal methods; Validation; Verification; Software-Engineering; Tools; DevOps.

### HUMAN FACTORS

HMI; Mode awareness; Trust in automation; Flight deck; Controls; Decision support; Human performance; Information abstraction; Crew coordination; Crew reduction; Remote and multi-vehicle piloting; Pilot training, Situational awareness.

### UNMANNED AIRCRAFT SYSTEMS & UNCREWED SPACECRAFT (UAS/USS)

Emerging Applications; Safe automation; Mission design and optimization; Safety risk mitigation; Health and trajectory prediction; Navigation performance; Certification and standards; Situation awareness; Mission technologies; Payload systems.

### URBAN, ADVANCED AIR MOBILITY & NEW SPACE

Safe, efficient aviation in urban/suburban areas; Highly automated aircraft/spacecraft for passengers, cargo and surveillance; Airspace operation and access; Beyond urban areas; Controls; Privacy.

## PANEL SESSIONS

DASC 2025 will offer to submit panel proposals. On success, conducting a panel discussion will be granted. Panel proposals should fit a field of interest and show confirmations of at least half of the panelists. The panel process will be announced online.

## SELECTION PROCESS

DASC is a competitive conference seeking for leading edge contributions and high-quality papers. Submissions will go through selection process by our technical committee, judging based on relevance, novelty, soundness, level of contribution, quality. Furthermore, excellent papers are eligible to awards presented during the conference.

## TECHNICAL COMMITTEE

**S. Al-Rubaye** (Cranfield U), **L. Alvarez** (MIT), **I. Amundson** (Collins), **B. Andersson** (CMU), **M. Bimbi** (Mathworks), **E. Blasch** (MOVEJ), **Y. Bordain** (Daedalean), **J. Boril** (UoD), **F. Causa** (UNINA), **D. Cofer** (Collins), **S. Cook** (Northrop Grumman), **D. Darwesh** (ESG), **T. Dautermann** (DLR), **D. de Niz** (CMU), **K. Dmitriev** (TUM FSD), **U. Durak** (DLR), **M. Durling** (GE), **T. Etherington** (retired), **G. Fasano** (UNINA), **M. Felux** (ZHAW), **T. Finck** (DLR), **K. Forsberg** (Saab), **P. Frantis** (UoD), **M. Gatti** (Thales), **A. Grossmann** (Collins), **C. Hackworth** (FAA), **M. Halle** (TUHH), **M. Hardt** (SkyGrid), **G. Isoletta** (UNINA), **C. Kallies** (DLR), **T. Khamvilai** (TTU), **J. Kim** (ISU), **E. Kleemann** (retired), **R. Koelle** (EUROCONTROL), **G. Konrad** (Honeywell), **B. Korn** (DLR), **L. Kosmidis** (BSC/UPC), **H. Lee** (NASA), **D. Loubach** (ITA), **B. Luettig** (USTUTT), **J. Marek** (Collins Aerospace), **J. Marques** (ITA), **B. Meng** (GE), **L. Meyer** (LFV), **F. Muenz** (Airbus), **P. Müller** (DAS), **C. Munoz** (NASA), **M. Murça** (ITA), **N. Neogi** (NASA), **P. Nuzzo** (UC Berkeley), **S. Paul** (GE), **R. Sabatini** (KUST), **S. Salgueiro** (SkyGrid), **M. Schultz** (UNIBWM), **A. Schweiger** (Airbus), **K. Siu** (GE), **T. Stelkens-Kobsch** (DLR), **P. Stütz** (UNIBWM), **C. Tiana** (Collins), **H. Tiedeman** (Collins Aerospace), **L. Turner** (Lockheed Martin), **P. Veneruso** (UNINA), **A. Videmsek** (Reliable Robotics), **M. Werthwein** (USTUTT), **W. Zaeske** (DLR) (more to be announced later)

## PROFESSIONAL EDUCATION

DASC will offer two days of Professional Education sessions spanning relevant engineering disciplines. These tutorials will be presented by educators and practicing professionals who are recognized experts in their field. Possible topics include:

- Basic & Advanced Avionics Systems
- Partitioning for Safety and Security, IMA, Multicore
- Surveillance & Collision Avoidance; Synthetic Vision; Sensing
- Navigation Systems, Performance Based Navigation
- Communications Systems and Networks
- Model-based Development, Digital Twin
- Systems Engineering; Program Management
- Software Development & Test Certification (DO-178)
- Environmental Qualification (DO-160)
- System Safety and/or Cybersecurity
- Autonomous Systems

Professional education sessions will offer Continuing Education Units (CEUs) through the IEEE. For more information, contact our Professional Education Chair.

## SPONSORS AND EXHIBITS

This year's conference will feature exhibits and product demonstrations by representatives of key avionics-related industries and institutions. To have your organization represented in our exhibit hall, please contact our Sponsors and Exhibits Chair via the conference website.