

31st DASC



31ST DIGITAL AVIONICS SYSTEMS CONFERENCE

October 14-18, 2012
Crowne Plaza Williamsburg, VA

Airplane image credit: NASA/MIT/Aurora Flight Sciences

January 27th, 2012

Hello Ladies and Gentlemen,

You are drawn to the 31st DASC because you are a technical professional with a keen interest in advanced aviation concepts and designs. Welcome!

As we bring in the New Year planning for the 31st Digital Avionics Systems Conference, we are gaining perspective. As you have found by now, our plan is to review and reflect the history of avionics and project this understanding into the future. Let's be smart in how we learn from history. We will do this while keeping our hand on the pulse of evolving electronics and other engineering advances that will enhance flight. We will press for more rapid advances in current applicable technologies by setting future goals.

Aviation has come a long way since seafaring vessels were compelled to use the airwaves for security due to the U.S. Radio Act of 1912. That very year, 100 years ago, the world witnessed the first piloted aircraft to attain 100 miles per hour. Just a dozen years earlier in 1900, the founder of the first jet aircraft (1944) would have been found being inspired by air ships known as Zeppelins. We'll consider how and why a lumber businessman in Washington State came to the conclusion that he would build aircraft that carry his name today. This occurred just a couple years after the Radio Act was in place. Was it fortuitous that our two World Wars advanced aviation?! Soon after the last one, we transitioned from vacuum tubes to much smaller devices capable of performing the same functions. We conquered manned and un-manned space flight through the 60s and walked on the Moon. In the 70s, supersonic transport was introduced commercially.

Review of the past 100 years of fantastic advances has brought us to the amazing times we live in today. Given the relatively brief time of recorded human history, this is an even smaller but accelerated snapshot of the evolution of human intelligence. Unfortunately, it is true that war has driven many of our technological advances over human history, but there are also examples such as the Cold War where our advances have come with minimal bloodshed. So, what happened in the late 40s that has led to the electronics capabilities that we enjoy today, 70 years later? Materials science may be the answer. As the room-sized vacuum-tube-driven digital devices were replaced with transistor-driven devices, we saw computers that weighed a ton and had a huge appetite for power scale down to what we have today. Smart-phones can now do more than computers could do then. Frankly, they can do more than the VAX 11/780 of 1985.

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We've seen the advances in communications, navigation, surveillance, powered-flight, and other functional utilities for air and space electronics that have been born from the miniaturization of the transistor. Now, transistors may number as many as 1,000,000 on a single square-centimeter chip.

At this year's conference, we will project advances in fields such as quantum mechanics, plasmonics, nano-scale gravitational field management, associated electromagnets, and phonon/photon characterization for digital applications. We'll also consider revolutionary material electronics in flight surfaces, controls, and power/propulsion management schemes. We want you to be a part of these advances by using your technical expertise in refining these and other related physical concepts and principles while safely moving digital aerospace electronics forward. We have come a long way since the introduction of diodes, transistors, and related semi-conductor devices of the 1950s.

Please consider these functional areas as relevant to the future of avionics:

Acquisition	International Affairs
Aerospace industrial base	Integrating Aerospace
Aging AC and Obsolete Avionics	Manufacturing and maintenance
Civilian/Mil Operations	Medical/Rescue Airlift and Special Projects
Collegiate Education	Other Special Programs
Commercial Operations	Post-event safety investigations
Criminal Investigations/Law Enforcement	Rotorcraft/Vertical Short-takeoff and landing
Execution of Government Programs	Satellite Avionics
Regulations and Training	Space Launch Services
General Aviation	Space Operations
Government NextGen Air Traffic Control	Aerospace Investments – Maintaining Program Integrity
High School Education	Systems Integration and Systems Engineering – Risk

Many of you are already aware of what the DASC does. We will continue to service exhibitors, sponsors, and provide an avenue for publishing. We will pay tribute to those avionics technologists going before and award those that are delivering avionics technology today. This year in Williamsburg, we'll enjoy the robust nature of flight in and around the Virginia's historic tidewater area while conjuring-up imagery of centuries gone by.

We're in the process of introducing a student competition "Avionics Competition/Challenge," so please be on the lookout for that, soon.

We'll have senior and acknowledged experts in our Plenary Session and provide you with an interactive Workshop environment. These are being designed now and you can influence them. Please see our Internet and Facebook presence and keep up as our tracks and sessions develop. Here are some of the track themes we are currently discussing:

1. Projecting Avionics History into the Distant Future
2. Air Traffic Management
3. Communications Navigation Surveillance and Information Management Systems
4. Flight Deck Systems and Interfaces
5. Systems Engineering – Design Methods and Tools
6. Unmanned Aerial Systems and Automation
7. Verification and Validation of Complex Systems

You'll also be pleased with our Tutorial Program and our plan to enhance it with remote access. It IS the digital age and we will bring current technologies to bear on what we do.

Thanks for supporting the DASC and helping us to accurately discern what the crystal ball tells us. Our robust team of volunteer professionals will serve you in helping to bring your intellect to bear and make this happen. Please check back here regularly for a History Rendition, a Future Rendition, and how the Current Plans are evolving for the 31st DASC and the avionics community.

I speak for the AIAA/DATC, IEEE/AESS, and the DASC committee when I say that we are confident that if you are involved in any aspect of aviation or aerospace electronics you will help influence the industry with your participation in this October 2012 venue. Set your calendars for Sunday, October 14 through Thursday, October 18, now. We'll have a Special Event on Friday morning, too, so plan to stay an extra day if you can.

Honored to serve,

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