Call for Abstracts

2019 AIAA NextGen Technical Symposium
Huntsville, AL - www.aiaanextgen.org

Important Dates

- Abstracts Due: August 2, 2019
- Selections Announced: August 12, 2019
- Presentations Due: August 30, 2019
- Event: September 9-10, 2019

Event Summary

The Greater Huntsville Section of the American Institute of Aeronautics and Astronautics (AIAA) will hold its fourth annual Next-Gen Technical Symposium (formerly known as Young Professionals Symposium) September 9-10, 2019. The purpose of this meeting is to provide an opportunity for area professionals and academia (post-graduate and above) to deliver a technical presentation to a group of peers and promote opportunities for interaction (technical and non-technical) with senior professionals in attendance. As travel to national and international conferences tends to be difficult for young professionals (YPs), this is a unique opportunity for YPs in academia, industry, and government to present their work and identify opportunities for alignment and collaboration in a more local setting.

A paper is *not* required to present. Required materials are an abstract and presentation.

Being a YP is *not* required to present. Our only restriction is that the material presented not be Undergraduate work.

It is the **presenter's responsibility** to ensure that the material presented has been cleared for public release by their organization.

Registration information available on the website. www.aiaanextgen.org

Abstract Submissions

Submissions will be accepted by the form on our website on the Call for Abstracts page

Technical Areas

The symposium organizing committee calls for abstracts related to presentations in the following areas:

-- Fly It --

FI1: *Unmanned Systems*

The session will focus on autonomy and unmanned systems related technologies and their applications with a focus on unmanned aircraft systems (UAS), but inclusive to other unmanned system types such as self-driving automobiles. Technical papers focused upon the systems enabling the safe integration of unmanned aircraft systems into the national airspace system (NAS) and international civil airspaces are of particular interest. Other topics such as unique applications of UAS, UAS design, UAS guidance navigation and control, UAS autonomy and path planning, urban operations, detect and avoid technologies, utilization of unmanned systems in engineering education, certification and design assurance of unmanned systems, and human-machine interfaces.

FI2: *Guidance, Navigation, & Control*

This session focuses on work related to GN&C and communications for aircraft and spacecraft including but not limited to satellites, rotorcraft, unmanned vehicles, hypersonics, and missiles.

FI3: *Space Exploration & Environments*

This session includes development of exploration concepts and architectures, research on living and working in the space environment, effects of spaceflight on the human body, radiation effects, microgravity payloads and research initiatives, and space debris cataloging and removal concepts.

FI4: *Propulsion & Transportation Architectures*

This session encompasses work on propulsion systems used in aerospace applications including but not limited to airbreathing propulsion systems, rocket engines and motors, and advanced propulsion concepts. The session also includes mission architectures that are enabled by these propulsion systems.

FI5: *Aerodynamics and Aeroacoustics*

This session will focus on subsonic/transonic/supersonic/hypersonic aerodynamics, aerodynamic control systems, acoustic/fluid dynamics interactions**,** active control of noise and vibrations, sonic boom mitigation techniques, testing techniques, and integration effects.

-- Build It --

BI1: *Regenerative Systems & Separations*

This session encompasses the processes, devices, and systems which enable human activity in space habitats, extravehicular activities, military and commercial aircraft, and undersea, among other long-duration missions. System advances include chemical sensors, medical air systems, purification technologies, and catalysis.

BI2: *Industrial & Manufacturing Engineering*

The session will include content on the processes, materials, automation, streamlining, advances in, and fundamentals of industrial and manufacturing engineering. Topics include but are not limited to application of robotics and artificial intelligence, Lean techniques, novel methods, case studies, analyses, and additive manufacturing.

BI3: *Materials, Structures, & Dynamics*

The materials, structures, and dynamics session will include content on advanced materials, manufacturing process development, dynamics and vibrations of high degree-of-freedom systems, environmental effects on materials, verification and certification of new materials in aerospace applications.

BI4: *Systems Engineering*

Papers in all areas of systems engineering (SE) are encouraged. All types of papers will be considered, including case studies, developmental work and technical analysis. Topics include but are not limited to systems engineering applications, integrated disciplines and technology, future trends and predictions in systems engineering, systems engineering education and research, systems engineering life cycle processes, systems effectiveness, and complex systems and/or system-of-systems engineering, and model-based systems engineering to include topics pertaining to Digital Thread and Digital Twin.

-- Code It --

CI1: *Modeling & Simulation*

Presentations in this session should relate to optimization, modeling of systems and environments, air traffic management, motion systems/visual systems/image generation, hardware-in-the-loop simulations, and verification and validation.

CI2: *Cyber Engineering*

Session includes presentations on policy, operations, and emerging technologies in electronic warfare, cybersecurity, and cyber operations. Topics include but are not limited to information processing, information assurance, risk management, embedded systems, and survivable computing in extreme environments.

CI3: *Data Science*

The session includes topics such as, but is not limited to interaction with and storage of very large data sets, efficient analysis methods for Big Data, distributed systems, relational models of data for shared databanks, multi-core optimizations, and statistical analyses.

CI4: *Artificial Intelligence & Machine Learning*

Technologies that enable autonomy (i.e. safe and reliable operation with minimal or no human intervention) as well as collaborative human-machine teaming in complex aerospace systems/sub-systems are of interest. These include, but are not limited to: autonomous and expert systems; discrete planning/scheduling algorithms; intelligent data/image processing, learning, and adaptation techniques; data fusion and reasoning; and knowledge engineering.

-- Teach It --

This session will focus on projects and programs that educate children K-12 and the community about STEM. Novel course curriculum and course delivery methods, novel pedagogies, innovative inter-collegiate and industry collaborations, and robust assessment methods are of interest. Educator associates are encouraged to present on any topic.

-- Special Topics --

This session includes the topics safety and mission assurance, aeronautics and space policy, aerospace law and regulations, and any other topics which do not fit into other technical sessions.

Questions and Comments

Questions and comments are welcome at submit@aiaanextgen.org or at https://aiaanextgen.org/pages/contact-us