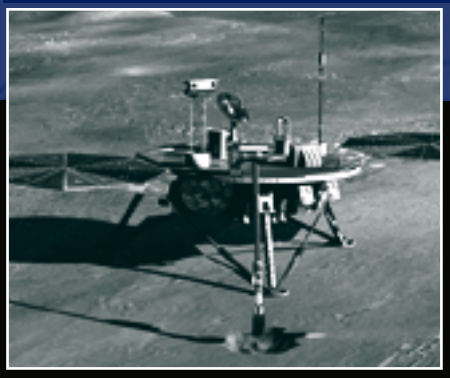
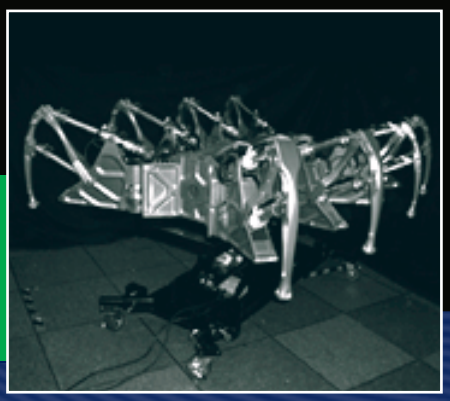
CALL FOR PAPERS

AIAA Infotech@Aerospace

2007 Conference and Exhibit

Abstract Deadline: 14 October 2006





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AIAA 75 Years

7–10 May 2007

Doubletree Hotel Sonoma Wine Country
Rohnert Park, California

Synopsis

Infotech@Aerospace—AIAA's premier event addressing information-enabled aerospace technologies, systems, and capabilities…

Infotech@Aerospace is AIAA's premier interactive forum addressing information-enabled aerospace, encompassing the technologies, systems, and capabilities that are shaping the 21st century. This unique workshop–conference provides an opportunity for interaction among experts from a wide range of technology areas, engineering disciplines, and user communities to further the conceptualization, development, integration, and fielding of systems.

The principal venue for the Institute's unmanned vehicles constituency…

Infotech@Aerospace is also the principal venue for AIAA activities in unmanned systems. This event will feature presentations and other input from experts in unmanned vehicles, subsystems, payloads, system-level development, and operational integration of all types, especially the unmanned air vehicle (UAV) constituency.

Showcasing the latest developments in information technology for aerospace systems…

The program will showcase the latest developments from information-technology–focused technical communities that contribute to and impact the evolution of advanced aerospace systems—both manned and unmanned. These include intelligent systems; network systems and technologies, including communications and information management; sensor systems; computers and computing systems; software and software systems; advanced digital avionics; guidance, navigation, and command and control (C2); information-based systems design tools; modeling and simulation for information-enabled systems; and other related areas of technology and engineering. The conference will also address key topics in the area of human–systems interaction and integration, including recent developments in augmented cognition.

With participation from experts in research, design, development, manufacturing, test, and operations…

With the spotlight of ***Infotech@Aerospace*** on aerospace integration, significant aspects of the technical program are focused on development and implementation of systems and on technical and operational integration, encompassing air and space applications of all types. Sessions will address developments in key areas such as systems-of-systems (SOS) architectures, including their development tools; network systems of concepts and designs; robotic systems and technologies; autonomous systems capabilities and technology; modern design of experiments (MDOE); human factors; and more. Experts from the research, design, development, manufacturing, test, and operations communities will share their observations and ideas on a broad array of topics germane to aeronautical, space, and related robotic applications for military, civil, scientific, or commercial purposes.

Featuring technical presentations, panels, workshops, exhibits, and special events…

Infotech@Aerospace affords a unique opportunity to the contemporary aerospace research and development community—an integrated and interactive experience composed of technical presentations, issue-focused panels and workshops, industry exhibits and demonstrations, and other special events that showcase the latest technologies, review the recent developments, and examine the issues that are pacing the integration and fielding of these leading edge systems, while providing opportunities for interaction and feedback by event participants. Attendees will find ***Infotech@Aerospace*** the most comprehensive forum of its kind anywhere in the aerospace arena devoted to the art and science of integration.

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The most comprehensive forum anywhere devoted to aerospace integration!

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AIAA Infotech@Aerospace 2007 Conference and Exhibit

www.aiaa.org/events/infotech@aerospace

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New Dates and Location!

7–10 May 2007

Doubletree Hotel Sonoma Wine Country
Rohnert Park, California

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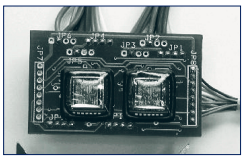

Supporting AIAA Technical and Program Committees

- Aircraft Design
- Aircraft Operations
- Computer Systems
- Digital Avionics
- Ground Testing
- Intelligent Systems
- Sensor Systems
- Software Systems
- Unmanned Systems

Special Events

Intelligent Systems Workshop

Intelligent systems technologies are enabling air and space missions to be more reliable, more ambitious in scope, and less labor-intensive for human operators. Workload has been reduced in the cockpit with intuitive interfaces and capable software tools to support the flight crew. Unmanned missions are moving toward a model of one operator for multiple vehicles, and direct spacecraft monitoring is required only when an anomaly is detected or a critical activity is in progress. Mission planning software for air and space vehicles is able to reason about and optimize tasks and trajectories for high-risk, high-cost missions. Onboard real-time software can actively process science and surveillance data, while guidance, navigation, and control technologies are becoming more robust via adaptation of models and controllers.

This workshop will bring together a diverse set of experts in intelligent systems (IS) to discuss emerging technological advances and the application of IS technologies to deployed air and space vehicle systems.

Network Centric Programs—An Interactive Symposium

This half-day event will focus on developments and issues associated with creating a net centric operational environment. Issues facing both "born net centric" and legacy systems will be discussed. Presentations by an expert panel will focus on several of these efforts, including their architecture, design and development progress, as well as a review of issues encountered by the programs and resultant lessons learned. Programs currently being considered to serve as the vehicle for this discussion range from legacy platforms such as F/A-18, MV-22, CV-22, AWACS, and C-17, to less mature developments such as Future Combat System, the Joint Tactical Radio System, and the now-cancelled Joint Unmanned Combat Air System. Specific topics will include Global Information Grid (GIG) evolution, legacy system migration to net centric capabilities and its implications, COTS/GOTS components and the GIG architecture, and perspectives on interoperability for future systems.

AIAA Intelligent Systems Student Paper Competition

Papers are sought from either graduate or undergraduate students, either currently enrolled or within six months of graduation, on the following intelligent systems (IS) topics:

- Computational techniques
- Software engineering
- Expert systems
- Intelligent and autonomous systems
- Robotics
- Human–computer interaction
- Knowledge management
- Data fusion

Only students may be authors and the work should not be previously published. Up to four finalists will be selected by a panel of judges for presentation at ***Infotech@Aerospace***. Finalists will present their papers at a special Student Paper Competition session, from which the Best Paper/Presentation will be selected. The winner will be presented with a $1,000 prize and recognized at the conference. All finalists will receive complimentary student registration and a $500 travel expense award. All awards are courtesy of **BAE Systems.** Those submissions to the student competition which are not selected as finalists will be submitted to regular sessions as indicated by the student author. Full papers (***not*** abstracts) in the standard AIAA format will be due on **14 October 2006** (length not to exceed 15 pages). Faculty and industry advisors should be recognized in an acknowledgements section of the paper. Authors will be notified on or about **15 December 2006** if their paper is selected either as a finalist or for inclusion in a regular session.

Questions should be referred to the AIAA Intelligent Systems Education Committee Chair, Dr. Mary Cummings, at **missyc@mit.edu**.

AIAA *Infotech@Aerospace*

Technical Focus Areas and Paper Topics

The technical program for ***Infotech@Aerospace*** will include a variety of invited and contributed presentations, as well as other event venues designed to promote participant interaction. The program will encompass a spectrum of topics including science, technology development, platform and system design and development, ground and flight test, and production and sustainment, as well as related operational concepts and experience in military, civil, and commercial applications.

Specific categories of interest for solicited papers and presentations include the following:

Unmanned Systems for Air, Space, and Other Applications

- Concepts, architectures, and designs, and their evolution
- Command and control (C2) and communications capabilities
- Unmanned and robotic vehicle concepts, designs, and technologies
- Bio-inspired vehicles and systems
- Unique subsystems and components
- Payloads and payload integration, including sensors and communications
- System and vehicle survivability
- System safety and reliability
- Military, civil, scientific, and commercial applications
- Science results from unmanned systems
- Production and sustainment of systems and platforms

Intelligent Systems

- Automated reasoning and cooperative systems
- Autonomy technologies for aeronautics and space
- Intelligent data management and decision support systems
- Multi-agent systems
- Machine learning
- Planning and scheduling
- Machine vision
- Applications of intelligent systems in science and civil applications

Computer and Software Systems

- Reconfigurable, responsive, and adaptive computing
- Memory and data storage technologies
- Micro- and nanotechnology for computing systems
- Software systems
- COTS software and hardware
- Embedded signal and data processing
- High-performance and grid computing
- Extreme environment and radiation-hardened electronics
- Interconnects, fabrics, and networking
- Development tools

Sensor Systems and Applications

- Orientation, navigation, and control of single and multiple airborne and space vehicles
- Weather tracking and prediction
- Remote tracking and identification of flying objects
- Sensor hardware associated with implementation of vehicle health monitoring
- Reconnaissance and object identification from space or airborne vehicles
- Space probes and systems for collection, processing, and communication of information gathered by them

Systems and Systems-of-Systems (SOS) Engineering

- Aerospace systems-of-systems—examples in design and implementation
- Enterprise architectures, design concepts, and integration tools

Aerospace Operations: Concepts, Experience/Lessons Learned, and Issues

- Manned–unmanned system interface and interactions
- Space operations, experience, and issues
- Unmanned air systems (UAS) operations in controlled airspace
- Multivehicle mission planning and dynamic re-planning
- Operational infrastructure needs, limitations, and other issues
- Launch and recovery of unmanned aerial, ground, and sea-based systems
- Collaborative operations between multiple vehicles/platforms
- Autonomous operations with multiple vehicles/platforms
- Science missions with unmanned systems—methods and results
- Mission studies—results and recommendations

Emerging and Enabling Technologies

- Communications systems and networks
- Bandwidth management
- Command and control (C2) of networked systems
- Speech-enabled command and control (C2)
- Guidance and navigation of multivehicle systems
- Digital avionics architectures and system solutions
- Information integrity and assuredness in wireless network environments

Human–Machine Systems and Their Interactions

- Human–computer interaction (HCI)—concepts, experience, and issues
- Human–robot interaction (HRI)—concepts, experience, and issues
- Augmented cognition for robotic systems collaboration and control
- Collaborative autonomy in piloted air and space vehicles
- Advanced display concepts, methodologies, and technologies

Information-Driven Payloads—Manned and Unmanned Applications

- Commercial, civil, and scientific applications, experience, and issues
- Payload design and integration

Engineering Tools and Their Applications

- Modeling, simulation, and analysis
- Intelligent engineering design, testing, and analysis
- Multivariable optimization of systems-of-systems applications
- Modern design of experiments (MDOE)

Aerospace Education

- Information-enabled aerospace in academic curricula
- Unmanned and intelligent system initiatives in academia

Abstract Submittal Guidelines

Abstract Submittal Guidelines

Abstract Deadline: 14 October 2006

Paper selection for this conference will be based on abstracts of no less than **500** words, with key figures and references to pertinent publications in existing literature. Abstract submissions will be accepted electronically through the conference Web site, **www.aiaa.org/events/infotech@aerospace**. The Web site will be open for abstract submittal on **1 June 2006**. The electronic submission process is as follows:

1. Click "Conferences & Events" on the AIAA home page.
2. Select this conference from the conference calendar and click "Submit Paper."
3. From the conference Call for Papers screen, identify the topic to which the prospective paper is best correlated, and click the "Select" link next to that topic.
4. Verify the topic selection and click "Select" again, then verify the rules and regulations on the subsequent page.
5. Answer the prompts to enter paper title, corresponding author information (including e-mail address), and A/V requirements.
6. When this information is complete, authors will be prompted to upload the abstract in any one of five formats: MS Word, WordPerfect, Text, RTF, or PDF.

Authors having trouble submitting abstracts electronically or those with questions about the procedure should e-mail AIAA technical support at **paper_tech_support@aiaa.org**. AIAA technical support will not upload your paper for you. Questions pertaining to the technical focus areas and paper topics should be referred to the technical program committee.

The deadline for receipt of abstracts via electronic submission is **14 October 2006**. Technical track and program chairs will notify authors of conditional acceptance and instructions will be sent on or about **15 December 2006** from AIAA Headquarters.

Young Professional Presentation Program

Young professionals are sought to participate in the Young Professional Presentation Program that provides young professionals under the age of 35 with an opportunity to present their work at a national AIAA technical conference. This program integrates young engineers into the regular sessions and allows them to give presentations covering continuing and in-process design or research works, in addition to completed projects. The Young Professional Presentation Program allows for oral presentations only; manuscripts are not required. Please note that this program does not violate the Institute's "No Paper, No Podium" rule; the program is fully supported by the AIAA Technical Activities Committee (TAC).

Presentation topics for the ***Infotech@Aerospace*** Young Professional Presentation Program should derive from topics listed in this call for papers and should be subjects with which the presenting engineer is engaged or intimately familiar.

Abstracts will need to be submitted as specified in this call for papers. All submission deadlines and policies are the same as those specified in this call for papers. When submitting your abstract electronically, please click the "Young Professional Presentation" box.

WARNING—Technology Transfer Considerations

Prospective authors are reminded that technology transfer guidelines have considerably extended the time required for review of abstracts and completed papers by U.S. government agencies. Internal (company) plus external (government) reviews can consume 16 weeks or more. Government review, if required, is the responsibility of the author. Authors should determine the extent of approval necessary early in the paper preparation process to preclude paper withdrawals and late submissions. The conference technical committee will assume that all abstracts, papers, and presentations are appropriately cleared.

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Final Manuscript Guidelines

Final Manuscript Deadline: 30 April 2007

Written papers should be submitted via the AIAA Web site by **30 April 2007**. Authors are required to submit a written paper prior to its presentation under the Institute's "No Paper, No Podium" rule. Prospective authors should keep this rule in mind when submitting their abstracts.

With their manuscripts, authors must include a cover letter that indicates they have received the appropriate company and/or sponsoring agency approval. The cover letter should also mention whether the presentation is anticipated to have any special audiovisual requirements other than an LCD projector. AIAA will not consider for presentation or publication any paper that has been published or is currently under consideration for publication elsewhere. Authors will be required to sign a statement to this effect.

Notice on Visas

If you plan to attend an AIAA technical conference or professional development course held in the United States and you require a visa for travel, it is incumbent upon you to apply for a visa with the U.S. embassy (consular division) or consulate with ample time for processing. To avoid bureaucratic problems, AIAA strongly suggests that you submit your formal application to U.S. authorities a minimum of 120 days in advance of the date of anticipated travel. For more information on visa requirements or to request a letter of invitation, please visit **www.aiaa.org/visa-info**.

Questions? Please contact:

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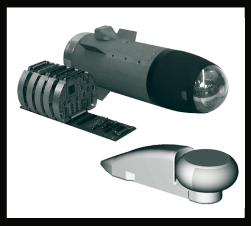


The World's Forum for Aerospace Leadership

The American Institute of Aeronautics and Astronautics (AIAA) advances the state of aerospace science, engineering, and technological leadership.

Headquartered in suburban Washington, D.C., the Institute serves over 35,000 members in 65 regional sections and 79 countries. AIAA membership is drawn from all levels of industry, academia, private research organizations, and government.

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