

NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2008)



June 22-25, 2008
ESTEC, ESA
Noordwijk
The Netherlands



Organized by

European Space Agency (ESA)
National Aeronautics and Space Administration (NASA)
University of Edinburgh, UK

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Conference Venue

AHS-2008 will be held at European Space Research and Technology Centre (ESTEC), Noordwijk, The Netherlands

Scope

The NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2008) will be held June 22-25, 2008, at ESA's European Space Research and Technology Centre (ESTEC) in Noordwijk, The Netherlands. The purpose of the conference is to bring together leading researchers from the adaptive hardware and systems community to exchange experiences and share new ideas in the field. The conference expands the topics addressed by the precursor series of [NASA/DoD Conference on Evolvable Hardware](#) the NASA/ESA series, held between 1999 and 2005. With a broader scope including a variety of hardware and system adaptation methods and targeting more industry participation, started with the AHS 2006 conference held in Istanbul, Turkey, June 15-18 2006 and AHS2007 conference held in Edinburgh, UK, August 5-8 2007.

Adaptation reflects the capability of a system to maintain or improve its performance in the context of internal or external changes, such as uncertainties and variations during fabrication, faults and degradations, modifications in the operational environment, incidental or intentional interference, different users and preferences, modifications of standards and requirements, trade-offs between performance and resources, etc.

Adaptation at hardware levels increases the system capabilities beyond what is possible with software-only solutions, and a large number of adaptation features employing both analog and digital adjustments are becoming increasingly present in the most elementary system components. Algorithms, techniques, and their implementation in hardware are developed over a diverse variety of applications, such as adaptive communications (adapting to changing environment and interferences), reconfigurable systems on a chip and portable wireless devices (adapting to power limitations) or survivable spacecraft (adapting to extreme environments and mission unknowns). This meeting will provide a forum for discussion on the generic techniques of adaptive hardware and systems, with a focus on communications and space applications, with view to its expansion and exploitation in other applications such as consumer, medical, defence and security, etc.

Topics to be covered include, but are not limited to:

Built-in tunable structures and automated tuning
Automatic/self-calibration
Built-in self-test and self-repair
On-chip learning and adaptation
Adaptive circuits and configurable IP cores
Reconfigurable and morphable hardware
Embryonic hardware, morphogenesis
Evolvable hardware

Design for adaptive systems
Adaptive control circuits
Adaptive flight hardware
Search and optimization algorithms for adaptive hardware
Hardware implementations of optimization engines
Learning and evolutionary algorithms for adaptive hardware
Algorithms for exploring design space of adaptive hardware
Adaptive computing and run-time reconfiguration
Adaptation with hardware in the loop

Adaptive optics
Adaptive antennas
Adaptive sensing
Adaptive interfaces
Hardware for adaptive signal processing
Adaptive medical and prosthetic devices
Adaptive wired and wireless networks
Adaptive hardware for autonomous systems
Adaptive flight hardware
Space Applications
Communications applications

Submission of Papers

Prospective authors are invited to submit the electronic version of their full paper (i.e. PS, PDF, MSWord) on the conference web site. Papers are limited to 8 pages and should be submitted in single-spaced, 10 point type on a 8.5" X 11" or equivalent paper with 1" margins on all sides. Each submission should contain the following items: (1) title of paper, (2) author name(s), (3) first author physical address, (4) first author e-mail address, (5) first author phone number, (6) a maximum 200 words abstract (7) the text of the paper, and (8) references. Accepted papers will be published in the conference proceedings published by IEEE.

Questions regarding papers should be addressed to:

Ahmet Erdogan

AhmetErdogan@ee.ed.ac.uk

Tel: +44 131 650 5619

Fax: +44 131 6506554

Contact Information

For further information please check the conference web site <http://www.see.ed.ac.uk/ahs2008>, or contact:

General/Technical:

Didier Keymeulen

didier@ehw.jpl.nasa.gov

Tel: +1 818 354-4280

Fax: +1 818 393 4272

Organizational/Logistics:

ESA Conference Bureau

esa.conference.bureau@esa.int

Tel: +31-71-5655005

Fax: +31-71-5655658

Tughrul Arslan

T.Arslan@ed.ac.uk

Tel: +44 131 6505592

Fax: +44 131 6506554

Important Dates

Proposals for tutorials, panels and workshops:

Submission deadline:

January 31, 2008

Author notification:

February 28, 2008

Camera ready manuscript deadline:

March 20, 2008

Author/Early registration:

April 7, 2008