



IEEE  
AEROSPACE  
and  
ELECTRONIC

# SYSTEMS MAGAZINE

October 2008  
ISSN 0885-8985  
Volume Twenty Three  
Number Ten  
Part 1 of 2

**Editor-in-Chief** – Evelyn H. Hirt  
**Associate Editor** – Teresa Pace  
**Associate Editor** – James D. Turner  
**Assistant Editor** – Marina Ruggieri  
**Tutorials Editor** – Lance M. Kaplan  
**Administrative Editor** – David B. Dobson  
**Assistant Administrative Editor** – A. Lim

**Sector Editors**

General & Comcl. Aviation – George Dean  
Avionics –  
Modeling & Simulation –  
Position, Location & Navigation –  
Radar Systems – Hugh Griffiths  
Sensors & Instrumentation –  
Space Systems – Mauro de Sanctis  
Systems Engineering –  
Book Reviewers –  
News & Information – A. Lim

**Contributing Editors**

Awards – Erwin C. Gangl  
Conferences – Barry C. Breen  
Education – Steve E. Watkins  
Ethics – Lise Johnson  
History – Henry Oman, Ron Schroer  
Patents, Stds. & Reg. Issues –  
Arnold M. Greenspan  
Technical Panels – James R. Huddle

**How to Reach Us**

We welcome letters; we reserve the right to edit for space, style, and clarity. Include address and daytime phone number.  
**E-mail:** Systems.AESS@ieee.org  
**Fax:** 301/657-0209  
**Mail:** IEEE A&E Systems Magazine,  
4500 N. Park Avenue, Chevy Chase,  
MD 20815-7239, USA

**Address Changes & General Information**

There is one method for updating your IEEE records: address, phone/fax numbers, e-mail address, etc.). Make on-line changes at:  
<http://service@ieee.org/memberserv/caof/intro.htm>.  
**IEEE Website:** [www.ieee.org](http://www.ieee.org)  
**AESS Website:** <http://www.ieee-aess.org/>

**Magazine Deadlines:** Material (except articles) must be received by no later than 60 days prior to the month of the issue in which it is to appear.

**Contributions within the scope of the Society are solicited.** Use the web-based submission system at: <http://sysaes.msubmit.net>. Guidelines may be found on the banner at the top of the submission homepage under "Information to Author." We do not encourage special sections but will consider special series. Contact the Editor-in-Chief.

*In This Issue – Technically* . . . . . 2

**Column**

◆ *We Salute NASA!* – E.H. Hirt . . . . . 3

**Articles**

◆ **Launching Astronauts: 50 Years of Electronic Checkout and Launch Systems at the Kennedy Space Center** . . . . . 4

*S.O. Starr*

◆ **Ultraspectral Imaging: A New Contribution to Global Virtual Presence** . . . . . 11

*A.D. Meigs, L.J. Otten, III & T.Yu. Cherezova*

◆ **Computer Course in the Applied Theory of Gyros** . . . . . 18

*V.E. Dzhashitov, V.M. Pankratov & A.V. Golikov*

◆ **Evaluating Aircraft Pilot – Navigational Equipment in Flight Tests** . . . . . 22

*E.G. Kharin, I.A. Kopylov,  
V.G. Polikarpov & V.A. Kopelovich*

◆ **Inertial Measurement Units on Micromechanical Sensors** . . . . . 26

*V.G. Peshekhonov, L.P. Nesenjuk, D.G. Gryazin,  
Ya.A. Nekrasov, M.I. Yevstifeyev, B.A. Blazhnov  
& V.D. Aksenenko*

◆ **Product-Based Security Model for Smart Home Appliances** . . . . . 32

*D. Pishva & K. Takeda*

**NASA at 50: Some Electronic Connections Part 2**

**News & Information**

History Conference; Free Newsletter . . . . . 25  
Letter to the Editor . . . . . 42  
Dual Use Technologies: A Key Topic in a Key Agreement . . . . . 45  
AESS Personnel Directory . . . . . 46  
IEEE/AESS Society Organization . . . . . 47

*Distinguished Lecturers* Last Appeared September 2008, Back Cover  
*Distinguished Tutorials* Last Appeared April 2008, Back Cover  
For current changes, see the AESS website