



AWARD OF EXCELLENCE



IEEE AEROSPACE and ELECTRONIC

SYSTEMS MAGAZINE

March 2011 ISSN 0885-8985 Volume Twenty Six Number Three

Editor-in-Chief - Teresa L. Pace
Associate Editor-in-Chief - Maria Greco
Administrative Editor - David B. Dobson
Ass't. Admin. Editor - Susanne J. Walsh
VP Publications, Chair - Joel F. Walker
AVP Publications, Chair - W. Dale Blair
Tutorials Editor - Lance M. Kaplan
AESS President (2010) - Marina Ruggieri

Associate Editors and Areas of Specialty
Tom Bowman - Ground Systems, Vision Systems, Electronics
Shirley Cheng - Guidance
Mauro De Sanctis - Space Systems
Maria Greco - Clutter Models, Radar Signal Processing, Radar Systems
Haiying Liu - Fusion, Image Processing, Tracking
Rao Mannepli - Satellites, Modeling and Simulation, Energy
Illir Progri - Position, Navigation, Timing
Ralph Teague - Sensors, Electro-Optics, Radar
Peter Willett - Tracking, Fusion, Signal Processing
Haidong Yu - Electronics, Power, Transportation

Contributing Editors
Awards - Erwin C. Gangl
Conferences - Mark E. Davis
Education - Steve E. Watkins
Ethics - Open
History - Henry Oman, Ron Schroer
Standards - Richard Hochberg
Technical Panels - Theodora Saunders
Website Updates - Judy Scharmann
Distinguished Lecturers & Tutorials - Iram Weinstein

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: sjwalsh4@gmail.com
Fax: 301/657-0209
Mail: IEEE A&E Systems Magazine, c/o D. Dobson, 5500 Friendship Blvd., 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://www.ieee.org/web/membership/join/update_profile.html
IEEE Website: 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 for Authors."

In This Issue - Technically 2

Column

- From the Editor-in-Chief - T. Pace 3

Articles

- Collaborative Engineering Environment for 21st Century Avionics 4

W.K. McQuay

- Low-Cost, Automated Ground Station for LEO Mission Support 12

D. Firestone, R. Atkin, C. Hooks, C.R. Englert, D.E. Siskind, P.A. Bernhardt, C.L. Siefring & P.A. Klein

- High-Performance Image Acquisition & Processing Unit Fabricated using COTS Technologies 19

S. Kimura, A. Miyasaka, R. Funase, H. Sawada, N. Sakamoto & N. Miyashita

- UAV Landing System Simulation Model Software System 26

G.V. Antsev, A.A. Makarenko, V.A. Sartychev & L.S. Turnetsky

- Unified Approach to Ultra-Tightly-Coupled GPS/INS Integrated Navigation System 30

D.H. Hwang, D.W. Lim, S.L. Cho & J.S. Lee

- Small-Sized Integrated Navigation System 39

K.K. Veremeenko, D.A. Antonov, V.M. Zharkov, R.Yu. Zimin & A.Yu. Tchernodoukbov

- Vertical References for Unmanned Aerial Vehicles 42

V.Ja. Raspopov, S.E. Tovkach, A.P. Shvedov, P.P. Paramonov & J.I. Sabo

News & Information

- IEEE AESS Distinguished Lecturers & Tutorials 45
Future IEEE AES Transactions: Reviewed and Accepted Contributions 46
Student Membership Application 47
Membership Application 48
Meetings Calendar Inside back cover