



AWARD OF EXCELLENCE



IEEE  
AEROSPACE  
and  
ELECTRONIC

# SYSTEMS

May 2010  
ISSN 0885-8985  
Volume Twenty Five  
Number Five

**Editor-in-Chief** – *Teresa L. Pace*  
**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 Manneppalli* – Satellites, Modeling and Simulation, Energy  
*Illir Progni* – 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](mailto: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](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

◆ **Mentoring: A Key to Longevity in Space** . . . . . 4

*B.K. Wetzel*

◆ **Passive Coherent Location as Cognitive Radar** . . . . . 12

*M. Inggs*

◆ **Cognitive Radio for Aeronautical Air-Ground Communications** . . . . . 18

*Y. Wang*

◆ **Adaptive Tomographic Sensors for Below Groung Imaging** . . . . . 24

*M.C. Wicks, J.D. Norgard & T.N. Cushman*

◆ **Uplink Array Concept Demonstration with the EPOXI Spacecraft** . . . . . 29

*V. Vilnrotter, D. Lee, T. Cornish, P. Tsao,  
L. Paal & V. Vaamnegad*

◆ **See-and-Avoid Performance Comparison Between Manned and Remotely Piloted Aircraft** . . . . . 36

*R.J. Kephart & M.S. Braasch*

## News & Information

*IEEE AES Transactions:* Reviewed & accepted contributions . . . . . 43

*IEEE AESS Lecturers & Tutorials* . . . . . 44

*IEEE AESS Organization* . . . . . 45

*IEEE AESS Directory* . . . . . 46

*Student Membership Application* . . . . . 47

*Membership Application* . . . . . 48

*Meetings Calendar* . . . . . Inside Back Cover