

<i>From the Editor-in-Chief</i>	1521
PAPERS	
Tightly Coupled Positioning and Multipath Radio Channel Tracking	A. Mannesson, M. A. Yaqoob, B. Bernhardsson, & F. Tufvesson 1522
Passive Tracking in Heavy Clutter With Sensor Location Uncertainty	Y. Guo, R. Tharmarasa, S. Rajan, T. L. Song, & T. Kirubarajan 1536
Analysis and Design of a Tilted Rotor Hexacopter for Fault Tolerance	J. I. Giribet, R. S. Sánchez-Peña, & A. S. Ghersin 1555
Along-Track Resolution Enhancement for Bistatic Imaging in Burst-Mode Operation	V. Kubica, X. Neyt, & H. Griffiths 1568
Fixed-Time Rendezvous Control of Spacecraft With a Tumbling Target Under Loss of Actuator Effectiveness ..	B. Jiang, Q. Hu, & M. I. Friswell 1576
Mismatch Filter Design via Convex Optimization	P. J. Kajenski 1587
Phase Adjustment for Polarimetric ISAR with Compressive Sensing	M. Wu, L. Zhang, X.-G. Xia, & M.-D. Xing 1592
Distance Measuring Equipment Interference Suppression Based on Parametric Estimation and Wavelet-Packet Transformation for Global Navigation Satellite Systems	R. Wu, W. Wang, L. Li, D. Lu, & L. Wang 1607
Radar Odometry with Recursive-RANSAC	E. B. Quist, P. C. Niedfeldt, & R. W. Beard 1618
Three-Stage Filter for Position Estimation Using Pseudorange Measurements	T. A. Johansen, T. I. Fossen, & G. C. Goodwin 1631
Stability Improvement of Isolated Multiple-Output DC/DC Converter Using Coupled Inductors	E. Sanchis-Kilders, A. Ferreres, J. L. Gasent-Blesa, E. Maset, V. Esteve, J. Jordán, & J. B. Ejea 1644
Multisensor-Multitarget Bearing-Only Sensor Registration	E. Taghavi, R. Tharmarasa, T. Kirubarajan, & M. McDonald 1654
Observability: Range-only vs. Bearings-only Target Motion Analysis for a Leg-by-Leg Observer's Trajectory	D. Pillon, A.-C. Pérez-Pignol, & C. Jauffret 1667
On Implementing 2D Rectangular Assignment Algorithms	D. F. Crouse 1679
Optimization-Based Alignment for Strapdown Inertial Navigation System: Comparison and Extension	L. Chang, J. Li, & K. Li 1697
Performance Analysis of AFDX Switch for Space Onboard Data Networks	C. Suthaputchakum, Z. Sun, C. Kavadias, & P. Ricco 1714
Drogue Dynamic Model Under Bow Wave in Probe-and-Drogue Refueling	Z.-B. Wei, X. Dai, Q. Quan, & K.-Y. Cai 1728
Weak Radar Signal Detection Based on Variable Band Selection	J.-W. Shin, K.-H. Song, K.-S. Yoon, & H.-N. Kim 1743
A Sum-of-Squares Approach to GNSS Spoofing Detection	D. Borio & C. Gioia 1756
Tracking With Asynchronous Passive Multisensor Systems	I. Klein & Y. Bar-Shalom 1769
Error Analysis of Analytical Coarse Alignment Formulations for Stationary SINS	F. O. Silva, E. M. Hemerly, & W. C. L. Filho 1777
Coherent Radar Processing in Sea Clutter Environments, Part 1: Modelling and Partially Adaptive STAP Performance	M. K. McDonald & D. Cerutti-Maori 1797
Coherent Radar Processing in Sea Clutter Environments, Part 2: Adaptive Normalised Matched Filter versus Adaptive Matched Filter Performance	M. K. McDonald & D. Cerutti-Maori 1818
Multisensor CPHD Filter	S. Nannuru, S. Blouin, M. Coates, & M. Rabbat 1834
Game Theoretic Distributed Waveform Design for Multistatic Radar Networks	A. Panoui, S. Lambotharan, & J. A. Chambers 1855
Generalization of ANN-Based Aircraft Dynamics Identification Techniques into the Entire Flight Envelope	A. Roudbari & F. Saghafi 1866
Exact Convex Relaxation for Optimal Flight of Aerodynamically Controlled Missiles	X. Liu, Z. Shen, & P. Lu 1881
Dual Phase Consensus Algorithm for Distributed Sensor Management	K. Neema, S. V. Subramanian, & D. Delaurentis 1893
Cooperative Space Object Tracking Using Space-Based Optical Sensors via Consensus-Based Filters	B. Jia, K. D. Pham, E. Blasch, D. Shen, Z. Wang, & G. Chen 1908
Class-Specific Model Mixtures for the Classification of Acoustic Time Series	P. M. Baggenstoss, & B. F. Harrison 1937
Design of OFDM Radar Pulses using Genetic Algorithm Based Techniques	G. Lellouch, A. K. Mishra, & M. Inggis 1953
A Mixture Regularized Rao-Blackwellized Particle Filter for Terrain Positioning	A. Murangira, C. Musso, & K. Dahia 1967
CORRESPONDENCE	
Optimization and Analysis of PDAF with Bayesian Detection	L. Zheng, T. Zeng, Q. Liu, T. Long, & X. Wang 1986
Direction-Finding Arrays of Directional Sensors for Randomly Located Sources	H. Gazzah, J. P. Delmas, & S. M. Jesus 1995
Nonlinear Gaussian Mixture PHD Filter With an H_∞ Criterion	W. Li & Y. Jia 2004
Approximate Distribution of the Low-Rank Adaptive Normalized Matched Filter Test Statistic Under the Null Hypothesis	G. Ginolhac & P. Forster 2016
ISAR Cross-Range Scaling via Joint Estimation of Rotation Center and Velocity	B.-S. Kang, J.-H. Bae, M.-S. Kang, E. Yang, & K.-T. Kim 2023
Novel Suboptimal Filter via Higher Order Central Moments	X. Luo, Y. Jiao, W.-L. Chiou, & S. S.-T. Yau 2030
Direction Finding with the Sensors' Gains Suffering Bayesian Uncertainty — Hybrid CRB and MAP Estimation	D. M. Kitave, T.-C. Lin, K. T. Wong, & Y. I. Wu 2038
Fast Cross-Correlation Mitigation via Minimum Mean-Square Error Estimation Based on Matched Filter Outputs for Consecutive DSSS Signals	Y. Shen, Y. Wang, X. Yu, & S. Wu 2044
Iterated Multiplicative Extended Kalman Filter for Attitude Estimation Using Vector Observations	L. Chang, B. Hu, & K. Li 2053
Technical Areas and Editors	2061



IEEE AEROSPACE AND ELECTRONIC SYSTEMS SOCIETY

The IEEE Aerospace and Electronic Systems Society is a society, within the framework of the IEEE, of members with professional interests in the organization, design, development, integration, and operation of complex systems for space, air, ocean, or ground environments. These systems include, but are not limited to, navigation, avionics, spacecraft, aerospace power, mobile electric power and electronics, military, law enforcement, radar, sonar, telemetry, defense, transportation, automatic test, simulators, and command and control. Many members are concerned with the practice of system engineering. All members of the IEEE are eligible for membership in the Society and receive the Society magazine *Systems* upon payment of the annual Society membership fee. The Transactions are unbundled and available at an additional fee. For information on joining, write to the IEEE at the address below. Member copies of publications are for personal use only.

IEEE AESS PUBLICATIONS BOARD

W. Dale Blair, VP-Publications, Chair
Maria Greco, Editor-in-Chief, *Systems*

Lance Kaplan, Editor-in-Chief, *Transactions*
Ex Officio: Rita Janssen, Managing Editor

William P. Walsh, Administrative Editor, Emeritus
Susanne Walsh, Assistant Administrative Editor

IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS

EDITOR-IN-CHIEF	Lance Kaplan	Attn: AMSRD-ARL-SE-SE, U.S. Army Research Laboratory, 2800 Powder Mill Road, Adelphi, MD 20783, USA, (301) 394-0807, FAX (301) 394-5234, E-mail: lkaplan@ieee.org
Associate Editor-in-Chief	Wolfgang Koch	Fraunhofer-Institut für Kommunikation, Informationsverarbeitung und Ergonomie (FKIE), Neuenahr Str. 20, 53343 Wachtberg, Germany, +49(0) 228 9435-383, FAX +49(0) 228 9435-685, E-mail: wolfgang.koch@fkie.fraunhofer.de
Associate Editor-in-Chief	Michael Rice	Dept. of Electrical & Computer Engineering, Brigham Young University, 459 Clyde Bldg., Provo, UT 84602, USA, (801) 422-4469, FAX (801) 422-0201, E-mail: mdr@ee.byu.edu
Business Editor	Open	
Managing Editor and Publication Office	Rita Janssen	810 E. 10th St., Lawrence, KS 66006, E-mail: rjanssen@allenpress.com

The Editors for technical fields of interest will be found on pages 2061–2066 of this issue.

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Barry L. Shoop, President and CEO
Karen Bartleson, President-Elect
Parviz Famouri, Secretary
Jerry Hudgins, Treasurer
Howard E. Michel, Past President
S. K. Ramesh, Vice President - Education Activities

Sheila Hemani, Vice President - Publication Services and Products
Wai-Choong Wong, Vice President - Member and Geographic Activities
Bruce P. Kraemer, President, IEEE Standards Association
Jose M. F. Moura, Vice President - Technical Activities
Peter Allen Eckstein, President, IEEE-USA

IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS (ISSN 0018-9251; USPS 0256-580) is published bimonthly by The Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society, or its members. **IEEE Corporate Office**, Three Park Ave., 17th Floor, New York, NY 10016-5997. **IEEE Operations Center**, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08854-4141. **NJ Telephone**: (732) 981-0060. Price/Publication Information: Individual copies: IEEE Members \$20.00 (first copy only). (Note: Postage and handling charges not included.) Member and nonmember subscription prices available on request. Available in microfiche and microfilm. **Copyright and Reprint Permissions**: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee indicated in the code at the bottom of the first page is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For all other copying, reprint, or republication permission, write to: Copyrights and Permissions Department, IEEE Publications Administration, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08854-4141. Copyright © 2016 by The Institute of Electrical and Electronics Engineers, Inc. All rights reserved. Periodicals postage paid at New York, NY, and at additional mailing offices. Postmaster: Send address changes to IEEE Transactions on Aerospace and Electronic Systems, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08854-4141. GST Registration No. 125634188. CPC Sales Agreement #40013087. Return undeliverable Canada addresses to: Pitney Bowes IMEX, P.O. Box 4332, Stanton Rd., Toronto, ON M5W 3J4, Canada. IEEE prohibits discrimination, harassment, and bullying. For more information visit <http://www.ieee.org/nondiscrimination>. Printed in the United States of America.

Information for Authors

The *IEEE Transactions on Aerospace and Electronic Systems* is a bimonthly journal that publishes papers concerned with the various aspects of systems for space, air, ocean, or ground environments. The boundaries of acceptable subject matter has been intentionally left flexible so that the Transactions can follow the research activities to better meet the needs of the members of the IEEE Aerospace and Electronic Systems Society. The topics of current interest are best summarized in the titles of the editorial areas published in the inside front cover of the transactions and on our website at <http://www.ieee-aess.org>.

Restrictions on Publication: The IEEE Aerospace and Electronic Systems Society publishes only original material that has not been either published or submitted for publication elsewhere. However, prior publication of an abbreviated and/or preliminary form of the material in conference proceedings or digests shall not preclude publication in the transactions when notice is made at the time of submission. Notice of prior publication of an abbreviated version of the manuscript must be given at the time of submission to the transactions. Submission of the manuscript elsewhere is precluded unless it is refused for publication or withdrawn by the author. Concurrent submission to other publications and these transactions is viewed as a serious breach of ethics and, if detected, will result in immediate rejection of the submission.

Sanctions for Plagiarism: If a manuscript is substantially similar to any previous journal submission by any of the authors, its history and some explanation must be provided. If a manuscript was previously reviewed and rejected by a different journal, the authors shall provide to their technical editor copies of all correspondence involving the earlier submission. In addition, the authors must discuss the reasons why it has been re-submitted and be prepared to deliver further material if more is requested. The authors of a manuscript that is found to have been plagiarized from others or contain a crossover of more than 25% with another journal manuscript by any of the authors will incur sanctions by the Aerospace and Electronic Systems Society. The following sanction will be applied for any of the above-noted infractions: (1) immediate rejection of the manuscript in question; (2) immediate withdrawal of all other submitted manuscripts by any of the authors to any of the Society's publications (journals, conferences, workshops); (3) prohibition against all of the authors for any new submissions, either individually, in combination with the authors of the plagiarizing manuscript as well as in combination with new coauthors, to ALL of the Society's publications (journals, conferences, workshops). The prohibition shall continue for at least two years from notice of suspension.

Types of Contributions: Contributions may be in the form of regular papers or correspondence. The distinction between regular papers and correspondence is not one of quality, but of nature. Regular papers are to be a well-rounded treatment of a problem area, while a correspondence item makes one or two points concisely. In regular papers, the title, abstract, and introduction should be sufficiently informative to illuminate the essence of the manuscript to the broadest possible audience and to place the contributions in context with related work. The body of the manuscript should be understandable without undue effort by its intended audience. Correspondence should be less discursive but equally lucid.

Submission of Manuscript for Review: Authors must submit manuscripts electronically via the internet at <http://taes.msubmit.net>. Each submission should include a cover letter with the names and addresses of four potential reviewers. Each manuscript should include a list of key words and title of less than nine words. Discovery of the work via a computer-assisted search should be facilitated by the title's relevance. An abstract of 75 words or less that clearly indicates the purpose and content of the paper and that includes the key words must

be included as part of the manuscript. Correspondence items should include an abstract of 50 words or less. If there is reference material that is both essential for the reviewing process and unavailable to the reviewers, the authors should provide an electronic copy for the sake of expediting their review process. Manuscripts should be submitted in two forms: a single-column/double-spaced "draft class" for review, and a formatted double-column version providing a good-faith estimate of possible publication expense. Authors may wish to consult the guidelines at <http://www.ieee.org/portal/pages/pubs/transactions/information.html> for formatting. LaTeX users are urged to adopt the `ieeetran.cls` document class file in single-column draft mode. These transactions do not place limits on a submitted manuscript's length, but authors should be aware that over-long manuscripts may receive unfavorable reviews.

Submission of Revised Manuscript: It is often the case that reviewers have comments, suggestions and concerns about a submitted manuscript. The revised and resubmitted manuscript should address all of these, and it is strongly recommended that it be accompanied by a "Reply to Reviewers Comments" document that discusses both the comments and the modifications. In the interest of timely publication, authors must resubmit revised manuscripts within 6 months of the date the previous decision was returned. After 6 months the manuscript will be considered withdrawn, and a revision received after that date will be treated as a fresh submission.

Submission of Final Manuscript Files: After a paper or correspondence is recommended for publication, you will be contacted by the Editorial Office and given information on what is required for your Final Submission Package. Authors should be careful to ensure that any differences between the accepted manuscript and the version in Final Submission Package be clearly marked and be in accordance with instructions from the accepting associate editor.

Information for all IEEE Authors: General information for IEEE authors is available at <http://www.ieee.org/organizations/pubs/authors.html> or on request from IEEE Publishing Services Administration, 445 Hoes Lane, Piscataway, New Jersey 08855-1331, telephone 1-732-562-3960, facsimile 1-732-981-8062.

Copyright: It is the policy of the IEEE to own the copyright to the technical contributions it publishes; authors are required to sign an IEEE copyright transfer form before publication. A blank copyright form will be sent to you from the Editorial Office when your manuscript is accepted and final files are requested. Publication will not take place without a completed copyright form.

Page Charges: For articles submitted before October 31, 2010, the author's company or institution will be requested to pay a voluntary U.S. \$200 per page for your article. Starting with articles whose initial submission is after October 31, 2010, publication of an accepted manuscript must be accompanied by U.S. \$200 for each printed page beyond 10 (for a regular paper) and beyond 6 (for a correspondence item)—a Letter, has a mandatory charge of U.S. \$250 per page in return for its expeditious appearance. Please note that voluntary payment of page charges beyond the mandatory is still very much appreciated, makes a difference to the financial wellbeing of the publication, and thus is a significant type of service to our Society. The author will receive 100 reprints without covers if the page charges are paid. Payment information will be forwarded to authors upon scheduling of their article for publication and will be based upon the formatted double-column version supplied with the final files.

Discloseability: The IEEE must, of necessity, assume that material submitted for publication is properly available for general dissemination to the audiences the IEEE is organized to serve. It is the responsibility of the author, not the IEEE, to determine whether disclosure of materials requires prior consent of other parties, and, if so, obtain it.

Periodicals Postage paid at New York, NY, and at additional mailing offices.