

# IEEE TRANSACTIONS ON SIGNAL PROCESSING

A PUBLICATION OF THE IEEE SIGNAL PROCESSING SOCIETY



[www.signalprocessingsociety.org](http://www.signalprocessingsociety.org)

Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine



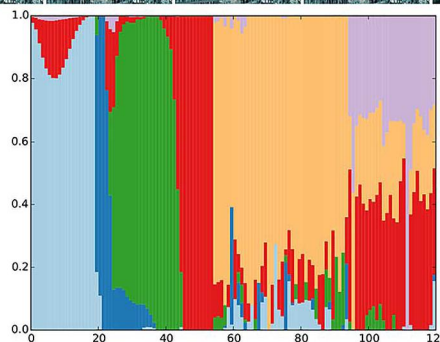
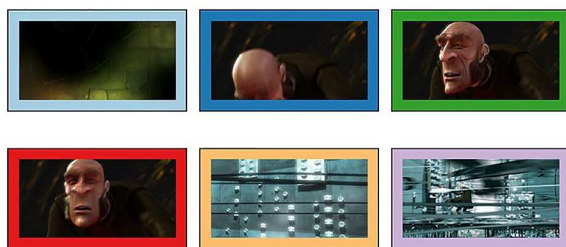
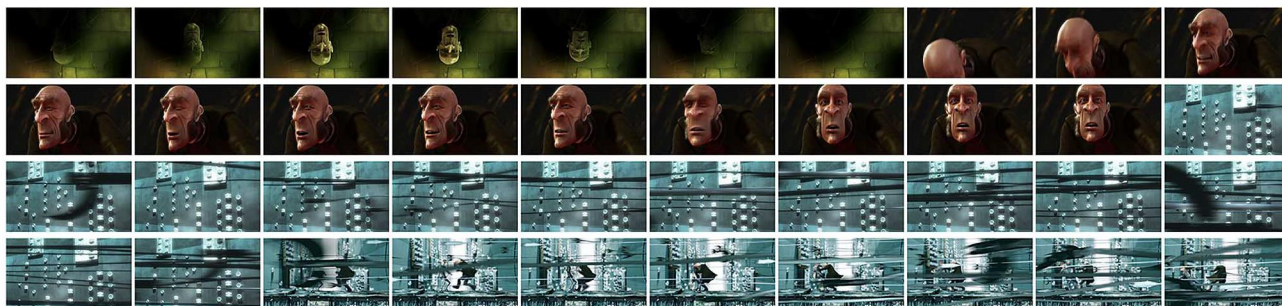
MAY 1, 2016  
MAY 15, 2016  
JUNE 1, 2016  
JUNE 15, 2016

VOLUME 64  
VOLUME 64  
VOLUME 64  
VOLUME 64

NUMBER 9  
NUMBER 10  
NUMBER 11  
NUMBER 12

ITPRED

(ISSN 1053-587X)



---

*For the May 1, 2016 issue, see p. 2189 for Table of Contents*  
*For the May 15, 2016 issue, see p. 2459 for Table of Contents*  
*For the June 1, 2016 issue, see p. 2726 for Table of Contents*  
*For the June 15, 2016 issue, see p. 3004 for Table of Contents*

---

# IEEE TRANSACTIONS ON SIGNAL PROCESSING

A PUBLICATION OF THE IEEE SIGNAL PROCESSING SOCIETY



[www.signalprocessingsociety.org](http://www.signalprocessingsociety.org)

Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine



MAY 15, 2016

VOLUME 64

NUMBER 10

ITPRED

(ISSN 1053-587X)

## REGULAR PAPERS

A High-Resolution Time-Frequency Rate Representation and the Cross-Term Suppression .....	<i>L. Zuo, M. Li, Z. Liu, and L. Ma</i>	2463
A General Design Framework for MIMO Wireless Energy Transfer With Limited Feedback .....	<i>J. Xu and R. Zhang</i>	2475
Resolution Doubled Co-Prime Spectral Analyzers for Removing Spurious Peaks .....	<i>X. Huang, Y. Han, Z. Yan, H. Xian, and W. Lu</i>	2489
Massive MIMO for Decentralized Estimation of a Correlated Source .....	<i>A. Shirazinia, S. Dey, D. Ciuonzo, and P. Salvo Rossi</i>	2499
Two-Way Location Estimation With Synchronized Base Stations .....	<i>O. Bialer, D. Raphaeli, and A. J. Weiss</i>	2513

(Contents Continued on Page 2460)

IEEE TRANSACTIONS ON SIGNAL PROCESSING (ISSN 1053-587X) is published semimonthly by the Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society/Council, or its members. **IEEE Corporate Office:** 3 Park Avenue, 17th Floor, New York, NY 10016-5997. **IEEE Operations Center:** 445 Hoes Lane, Piscataway, NJ 08854-4141. **NJ Telephone:** +1 732 981 0060. **Price/Publication Information:** Individual copies: IEEE Members \$39.00 (first copy only), non-members \$663.00 per copy. (Note: Postage and handling charge not included.) Member and nonmember subscription prices available upon request. **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 of \$31.00 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, Piscataway, NJ 08854-4141. Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc. All rights reserved. **Postmaster:** Send address changes to IEEE TRANSACTIONS ON SIGNAL PROCESSING, IEEE, 445 Hoes Lane, 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 U.S.A.



---

A Novel Characteristic Parameter Approach for Analysis and Design of Linear Components in Nonlinear Systems .....	<i>Z. Xiao and X. Jing</i>	2528
Bayes-Optimal Joint Channel-and-Data Estimation for Massive MIMO With Low-Precision ADCs .....	<i>C.-K. Wen, C.-J. Wang, S. Jin, K.-K. Wong, and P. Ting</i>	2541
GEVD-Based Low-Rank Approximation for Distributed Adaptive Node-Specific Signal Estimation in Wireless Sensor Networks .....	<i>A. Hassani, A. Bertrand, and M. Moonen</i>	2557
Optimal Joint Detection and Estimation Based on Decision-Dependent Bayesian Cost .....	<i>S. Li and X. Wang</i>	2573
Asymmetric Threat Modeling Using HMMs: Bernoulli Filtering and Detectability Analysis .....	<i>K. Granström, P. Willett, and Y. Bar-Shalom</i>	2587
A Wideband Front-End Receiver Implementation on GPUs .....	<i>S. C. Kim and S. S. Bhattacharyya</i>	2602
Design of IIR Multi-Notch Filters Based on Polynomially-Represented Squared Frequency Response .....	<i>C. Duarte, K. E. Barner, and K. Goossen</i>	2613
Analytical Derivation of the Inverse Moments of One-Sided Correlated Gram Matrices With Applications .....	<i>K. Elkhail, A. Kammoun, T. Y. Al-Naffouri, and M.-S. Alouini</i>	2624
Design of Binary Quantizers for Distributed Detection Under Secrecy Constraints .....	<i>V. S. S. Nadendla and P. K. Varshney</i>	2636
Cluster Based Multidimensional Scaling for Irregular Cognitive Radio Networks Localization ....	<i>N. Saeed and H. Nam</i>	2649
A Newborn Track Detection and State Estimation Algorithm Using Bernoulli Random Finite Sets .....	<i>B. Choi, S. Park, and E. Kim</i>	2660
Generalized Interference Alignment—Part I: Theoretical Framework .....	<i>L. Ruan, V. K. N. Lau, and M. Z. Win</i>	2675
Generalized Interference Alignment—Part II: Application to Wireless Secrecy ...	<i>L. Ruan, V. K. N. Lau, and M. Z. Win</i>	2688
Uplink Downlink Rate Balancing and Throughput Scaling in FDD Massive MIMO Systems .....	<i>I. Bergel, Y. Perets, and S. Shamai</i>	2702
Transmitter Optimization for Per-Antenna Power Constrained Multi-Antenna Downlinks: An SLNR Maximization Methodology .....	<i>H. Shen, W. Xu, A. Lee Swindlehurst, and C. Zhao</i>	2712

---