

IEEE TRANSACTIONS ON SIGNAL PROCESSING

A PUBLICATION OF THE IEEE SIGNAL PROCESSING SOCIETY



www.signalprocessingsociety.org

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



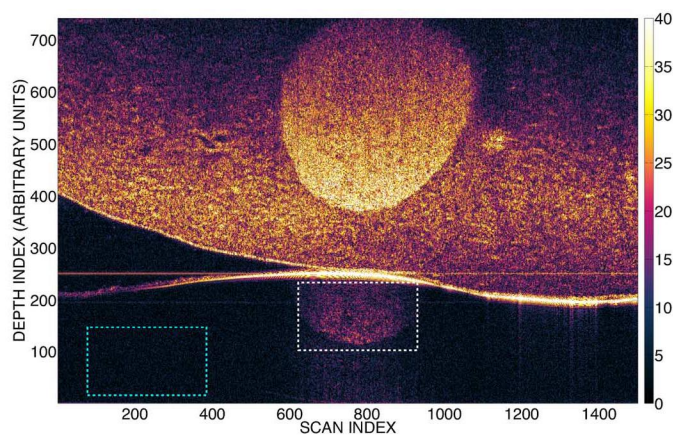
JANUARY 1, 2016
JANUARY 15, 2016
FEBRUARY 1, 2016
FEBRUARY 15, 2016

VOLUME 64
VOLUME 64
VOLUME 64
VOLUME 64

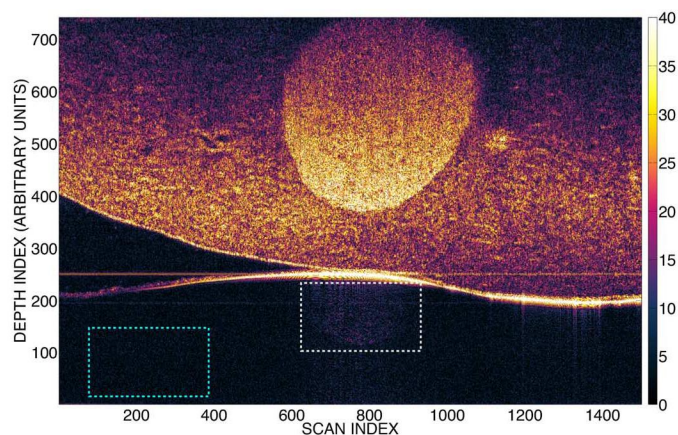
NUMBER 1
NUMBER 2
NUMBER 3
NUMBER 4

ITPRED

(ISSN 1053-587X)



(a)



(b)

For the January 1, 2016 issue, see p. 1 for Table of Contents

For the January 15, 2016 issue, see p. 271 for Table of Contents

For the February 1, 2016 issue, see p. 539 for Table of Contents

For the February 15, 2016 issue, see p. 812 for Table of Contents

IEEE TRANSACTIONS ON SIGNAL PROCESSING

A PUBLICATION OF THE IEEE SIGNAL PROCESSING SOCIETY



www.signalprocessingsociety.org

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



FEBRUARY 15, 2016

VOLUME 64

NUMBER 4

ITPRED

(ISSN 1053-587X)

REGULAR PAPERS

Steady-State Performance of Spline Adaptive Filters	816
..... <i>M. Scarpiniti, D. Comminiello, G. Scarano, R. Parisi, and A. Uncini</i>	
Fault-Tolerant Associative Memories Based on c -Partite Graphs	829
..... <i>F. Leduc-Primeau, V. Gripon, M. G. Rabbat, and W. J. Gross</i>	
Energy Efficiency Optimization for MISO SWIPT Systems With Zero-Forcing Beamforming	842
..... <i>Q. Shi, C. Peng, W. Xu, M. Hong, and Y. Cai</i>	
Fast Discrete Linear Canonical Transform Based on CM-CC-CM Decomposition and FFT	855
..... <i>S.-C. Pei and S.-G. Huang</i>	
Probabilistic Power Allocation for Cognitive Radio Networks With Outage Constraints and One-Bit Side Information ..	867
..... <i>W.-H. Chen, W.-R. Lin, H.-C. Tsao, and C. Lin</i>	
Distributed Energy Spectral Efficiency Optimization for Partial/Full Interference Alignment in Multi-user Multi-relay Multi-cell MIMO Systems	882
..... <i>K. T. K. Cheung, S. Yang, and L. Hanzo</i>	

(Contents Continued on Page 813)

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.



Asymptotically Optimal CFAR Detectors	<i>A. Ghobadzadeh, S. Gazor, M. Naderpour, and A. A. Tadaion</i>	897
Multi-Wideband Waveform Design for Distance-Adaptive Wireless Communications in the Terahertz Band	 <i>C. Han, A. O. Bicen, and I. F. Akyildiz</i>	910
A Bayesian Technique for Real and Integer Parameters Estimation in Linear Models and Its Application to GNSS High Precision Positioning	<i>J. G. Garcia, P. A. Roncagliolo, and C. H. Muravchik</i>	923
Comparing Multivariate Complex Random Signals: Algorithm, Performance Analysis and Application	<i>J. K. Tugnait</i>	934
The Accurate Continuous-Discrete Extended Kalman Filter for Radar Tracking	<i>G. Y. Kulikov and M. V. Kulikova</i>	948
Predicting Grades	<i>Y. Meier, J. Xu, O. Atan, and M. van der Schaar</i>	959
Fast and Accurate Rank Selection Methods for Multistage Wiener Filter	<i>M. Zhang, A. Zhang, and J. Li</i>	973
Mean-Square Deviation Analysis of Multiband-Structured Subband Adaptive Filter Algorithm	 <i>J. J. Jeong, S. H. Kim, G. Koo, and S. W. Kim</i>	985
Enhancing Sparsity and Resolution via Reweighted Atomic Norm Minimization	<i>Z. Yang and L. Xie</i>	995
Robust, Scalable, and Fast Bootstrap Method for Analyzing Large Scale Data	<i>S. Basiri, E. Ollila, and V. Koivunen</i>	1007
Self-Localization of Ad-Hoc Arrays Using Time Difference of Arrivals	 <i>L. Wang, T.-K. Hon, J. D. Reiss, and A. Cavallaro</i>	1018
Energy Efficiency of Distributed Signal Processing in Wireless Networks: A Cross-Layer Analysis	 <i>G. Geraci, M. Wildemeersch, and T. Q. S. Quek</i>	1034
Convergence and Fluctuations of Regularized Tyler Estimators	 <i>A. Kammoun, R. Couillet, F. Pascal, and M.-S. Alouini</i>	1048
FIR Filter Design via Extended Optimal Factoring	<i>A. Mehrnia and A. N. Willson</i>	1061
Recovery of Sparse Signals via Generalized Orthogonal Matching Pursuit: A New Analysis	 <i>J. Wang, S. Kwon, P. Li, and B. Shim</i>	1076

EDICS—Editors' Information Classification Scheme	1090
Information for Authors	1091

About the Cover: The images on the cover are reconstructed tomograms from 1500 lateral scans of a slice of mouse pancreas by (a) the standard Fourier inversion technique and (b) the proposed method, described in Shenoy, Mulleti, and Seelamantula's paper "Exact Phase Retrieval in Principal Shift-Invariant Spaces" on page 406. The proposed method has suppressed the autocorrelation artifacts that are present in the Fourier inverse method as highlighted by the white rectangle. The ABR, which is the ratio of energies of the pixel intensities within the white rectangle to those within the green rectangle, is 11.55 and 8.85 dB for the standard Fourier inversion technique and the proposed technique, respectively. The authors have used the Morgenstemning colormap proposed by Geissbuehler and Lasser for displaying the images as it is compatible with red/green color perception deficiencies.