

IEEE SIGNAL PROCESSING SOCIETY

The Signal Processing Society is an organization, within the framework of the IEEE, of members with principal professional interest in the technology of transmission, recording, reproduction, processing, and measurement of speech; other audio-frequency waves and other signals by digital electronic, electrical, acoustic, mechanical, and optical means; the components and systems to accomplish these and related aims; and the environmental, psychological, and physiological factors of these technologies. All members of the IEEE are eligible for membership in the Society and will receive this TRANSACTIONS upon payment of the annual Society membership fee of \$29.00 plus an annual subscription fee of \$48.00. For information on joining, write to the IEEE at the address below. *Member copies of Transactions/Journals are for personal use only.*

ASSOCIATE EDITORS

A. ALATTAR Digimarc Corp. Tualatin, OR	H. EL-GAMAL Ohio State Univ. Columbus, OH 43210	D. KIROVSKI Microsoft Research Redmond, WA 98052	F. PEREZ-GONZALEZ Universidad de Vigo Vigo Pontevedra, Spain 36310	R. SEKAR Stony Brook Univ. Stony Brook, NY 11794
M. BARNI Dipart. di Ingegneria dell'Info. Siena, Italy	P. FLYNN Univ. of Notre Dame Notre Dame, IN 46556	M. LIAO Institute of Information Science Taipei, Taiwan	A. PIVA Univ. of Florence Firenze, Italy	W. TRAPPE Rutgers Univ. WINLAB North Brunswick, NJ 08902
E. BERTINO Purdue Univ. West Lafayette, IN 47907	J. J. FRIDRICH SUNY T. J. Watson School Binghamton, NY 13902-6000	D. MALTONI Univ. di Bologna Cesena (FC), Italy 47023	B. PRENEEL Katholieke Univ. Leuven, Belgium B-3001	M. WU Univ. of Maryland College Park, MD 20742
C. CACHIN IBM Zurich Research Lab Ruschlikon, Switzerland CH-8803	Y. GUAN Iowa State Univ. Ames, IA 50011	M. K. MIHCAK Bogazici Univ. Istanbul, Turkey 34342	A. ROSS West Virginia Univ. Morgantown, WV 26506-6109	
R. H. DENG Singapore Management Univ. Singapore, Singapore	T. KALKER Hewlett-Packard Palo Alto, CA 94304	C. PAAR Ruhr-Univ. Bochum Bochum, Germany	A. RUBIN Johns Hopkins Univ. Baltimore, MD 21211	W. ZENG Univ. Missouri-Columbia Columbia, MO 65211

TECHNICAL CO-SPONSORS

IEEE COMMUNICATIONS SOCIETY	IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY
IEEE COMPUTATIONAL INTELLIGENCE SOCIETY	IEEE INFORMATION THEORY SOCIETY
IEEE COMPUTER SOCIETY	

IEEE Officers

PEDRO A. RAY, <i>President</i>	JON G. ROKNE, <i>Vice President, Publication Services and Products</i>
MOSHE KAM, <i>President-Elect</i>	BARRY L. SHOOP, <i>Vice President, Membership and Geographic Activities</i>
DAVID G. GREEN, <i>Secretary</i>	W. CHARLTON (CHUCK) ADAMS, <i>President, IEEE Standards Association</i>
PETER W. STAECKER, <i>Treasurer</i>	ROGER D. POLLARD, <i>Vice President, Technical Activities</i>
JOHN R. VIG, <i>Past President</i>	EVELYN H. HIRT, <i>President, IEEE-USA</i>
TARIQ S. DURRANI, <i>Vice President, Educational Activities</i>	
ALFRED O. HERO, III, <i>Director, Division IX—Signals and Applications</i>	

IEEE Executive Staff

DR. E. JAMES PRENDERGAST, <i>Executive Director & Chief Operating Officer</i>	MATTHEW LOEB, <i>Corporate Strategy & Communications</i>
BETSY DAVIS, <i>SPHR, Human Resources</i>	RICHARD D. SCHWARTZ, <i>Business Administration</i>
ANTHONY DURNIK, <i>Publications Activities</i>	CHRIS BRANTLEY, <i>IEEE-USA</i>
JUDITH GORMAN, <i>Standards Activities</i>	MARY WARD-CALLAN, <i>Technical Activities</i>
CECELIA JANKOWSKI, <i>Member and Geographic Activities</i>	
DOUGLAS GORHAM, <i>Educational Activities</i>	

IEEE Periodicals

Transactions/Journals Department

Staff Director: FRAN ZAPPULLA

Editorial Director: DAWN MELLEY Production Director: PETER M. TUOHY
Managing Editor: JEFFREY E. CICHOCKI Senior Editor: EILEEN MCGUINNESS

IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY (ISSN 1556-6013) is published quarterly 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 \$20.00 (first copy only), nonmembers \$181.00 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 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, Piscataway, NJ 08854-4141. Copyright © 2010 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 FORENSICS AND SECURITY, 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.