

2005 Best Paper Award Recipients: A Message from the Editor-in-Chief

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Abstract—Each year in spring, the IEEE Signal Processing Society, at the International Conference on Acoustics, Speech, and Signal Processing (ICASSP), presents its annual awards. Several of these awards are related to Best Papers, and although this is not a rule, several of these papers have appeared in IEEE TRANSACTIONS ON SIGNAL PROCESSING. In this editorial, we are pleased to announce the articles receiving 2005 awards. For the 2006 awards, readers are encouraged to nominate candidate papers before September 1, 2006 to the Editor-in-Chief. Nominations will be judged by the relevant Society Technical Committees before being forwarded to the Awards Board.

I. BEST PAPER AWARDS

THREE articles from the IEEE TRANSACTIONS ON SIGNAL PROCESSING have been selected by the Signal Processing Society to receive 2005 Best Paper Awards. The Best Paper Award honors the authors of a paper of exceptional merit dealing with a subject related to the Society's technical scope, irrespective of the author's age. Eligibility for this Award is based on a three-year window preceding the year of election (in this case, 2002 to 2004), and judging is based on general quality, originality, subject matter, and timeliness. The 2005 awardees are as follows:

- 1) **Wade Trappe, Min Wu, Z. Jane Wang, and K. J. Ray Liu**, for the paper entitled "Anti-Collusion Fingerprinting for Multimedia," *IEEE Transactions on Signal Processing*, Special issue on Signal Processing for Data Hiding in Digital Media & Secure Content Delivery, vol. 51, no. 4, pp. 1069–1087, Apr. 2003. The authors present a novel framework for multimedia fingerprinting and propose new, effective approaches to deal with collusion attacks, solving the multimedia collusion fingerprinting problem via a new framework for joint consideration of coding, embedding, and detection.
- 2) **A. Lee Swindlehurst and Geert Leus**, for the paper entitled "Blind and Semi-Blind Equalization for Generalized Space-Time Block Codes," *IEEE Transactions on Signal Processing*, vol. 50, no. 10, pp. 2489–2498, Oct. 2002. The authors present the theory of blind and semi-blind space-time decoding in a general framework and obtain a full set of sufficient conditions for blind identifiability using only space-time block code structure (and training data in the semi-blind case). The proposed algorithms have high performance and are general, computationally efficient, and applicable essentially to any type of space-time block code.

- 3) **Roberto Lopez-Valcarce**, for the paper entitled "Realizable Linear and Decision Feedback Equalizers: Properties and Connections," *IEEE Transactions on Signal Processing*, vol. 52, no. 3, pp. 757–773, Mar. 2004. The author presents a new approach to analyze minimum mean square error (MMSE) linear and decision feedback equalizers (DFE), derives the optimum filter coefficients and their degrees, and provides new insights on many related issues including decision delay optimization, whiteness properties of the error sequence, and asymptotic results as the filter lengths increase.

II. YOUNG AUTHOR BEST PAPER AWARDS

In addition, three articles from the TRANSACTIONS have been selected to receive the 2005 Young Author Best Paper Award, honoring the authors of an especially meritorious paper dealing with a subject related to the Society's technical scope and whose lead author, upon the date of submission of the paper, is less than 30 years of age. The 2005 awardees are as follows:

- 1) **Tobias Dahl**, for the paper coauthored with N. Christophersen and D. Gesbert, entitled "Blind MIMO Eigenmode Transmission Based on the Algebraic Power Method," *IEEE Transactions on Signal Processing*, vol. 52, no. 9, pp. 2424–2431, Sep. 2004. The idea of "time reversal" is used to allow a system with multiple antennas to determine the optimum eigen-beamforming vectors without having to feed back the channel estimates, or explicitly compute the system's "modes"; the receiver simply feeds back the (conjugated) received signal to the transmitter. The blind identification procedure is based on power iterations for computing the dominant eigenvectors of a matrix, where (ingeniously) the channel is used for executing the iterations.
- 2) **W. Younis**, for the paper coauthored with A. H. Sayed and N. Al-Dhahir entitled "Efficient Adaptive Receivers for Joint Equalization and Interface Cancellation in Multiuser Space-Time Block-Coded Systems," *IEEE Transactions on Signal Processing*, vol. 51, no. 11, pp. 2849–2862, Nov. 2003. The paper proposes a remarkable receiver architecture for multiple antenna (MIMO) broadband wireless communication that includes channel estimation, joint decoding, and equalization, and where the complexity of the signal processing is comparable to that of single antenna systems. By combining RLS algorithms with the algebraic structure of a space-time block code, the authors obtain RLS performance at LMS complexity.

- 3) **Marius Pesavento**, for the paper coauthored with A. B. Gershman and K. M. Wong, entitled "Direction Finding in Partly Calibrated Sensor Arrays Composed of Multiple Subarrays," *IEEE Transactions on Signal Processing*, vol. 50, no. 9, pp. 2103–2115, Sep. 2002. The paper proposes a new highly innovative approach to direction of arrival (DOA) estimation in large sensor

arrays which are composed of subarrays that are only partly calibrated. It is shown that, under certain mild conditions, the DOA estimation problem can be solved without any need of knowledge of the displacements among different subarrays. The proposed algorithms reduce to eigen-decomposition and one-dimensional polynomial rooting.