

# Best Paper Award Recipients: A Message From the Editor-in-Chief

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**Abstract**—The IEEE TRANSACTIONS ON SIGNAL PROCESSING is fortunate to attract submissions of the highest quality and to publish articles that deal with topics that are at the forefront of what is happening in the field of signal processing and its adjacent areas. In this column, we are pleased to announce the TRANSACTIONS articles that have been selected to receive 2004 best paper awards. We would also like to encourage our readers to nominate TRANSACTIONS papers for awards. Nominations can be submitted online through the TRANSACTIONS website.

## I. BEST PAPER AWARDS

**T**WO articles from the TRANSACTIONS have been selected by the IEEE Signal Processing Society to receive the 2004 Best Paper Award. This award honors the author(s) of a paper of exceptional merit dealing with a subject related to the Society's technical scope and irrespective of the author's age. Eligibility for this award is based on a three-year window preceding the year of election, and judging is based on general quality, originality, subject matter, and timeliness. The 2004 awardees were

- 1) **Sergiy A. Vorobyov, Alex Gershman and Zhi-Quan Luo**, for the paper entitled "Robust adaptive beamforming using worst-case performance optimization: A solution to the signal mismatch problem," *IEEE Transactions on Signal Processing*, vol. 51, no. 2, pp. 313–324, Feb. 2003. The paper makes a contribution to the problem of designing adaptive beamformers that are robust to steering vector errors. It proposes an approach to robust minimum variance beamforming that is based on worst-case performance optimization. The resulting beamformer has improved robustness properties when compared to other robust beamforming techniques.
- 2) **M. Dong and Lang Tong**, for the paper entitled "Optimal design and placement of pilot symbols for channel estimation," *IEEE Transactions on Signal Processing*, vol. 50, no. 12, pp. 3055–3069, Dec. 2002. The paper considers the problem of designing and placing pilot symbols for

the estimation of frequency selective random channels. It is shown that the optimal strategy is to place pilot symbols with smaller magnitudes closer to the two ends of a packet and placing those with larger magnitudes closer to the center, while satisfying certain orthogonality condition. The results also indicate that the optimal pilot placements are independent of channel probability distribution.

## II. YOUNG AUTHOR BEST PAPER AWARDS

One additional paper from the TRANSACTIONS has been selected to receive the 2004 Young Author Best Paper Award, which honors the author(s) 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 2004 awardee was

- 1) **Daniel P. Palomar**, for the paper co-authored with J. Cioffi and M. A. Lagunas, entitled "Joint Tx-Rx beamforming design for multicarrier MIMO," *IEEE Transactions on Signal Processing*, vol. 51, no. 9, pp. 2381–2401, Sep. 2003. The paper addresses the design of linear transceivers for multiple-input multiple-output (MIMO) channels. The authors develop a framework that embraces the design of linear MIMO transceivers under an arbitrary cost function with perfect channel knowledge. The optimal solution is fully characterized for the family of Schur-concave and Schur-convex functions.



**M. Dong** (S'00–M'05) received the B.Eng. degree from Tsinghua University, Beijing, China in 1998 and the Ph.D. degree in electrical and computer engineering from Cornell University, Ithaca, NY, in 2004.

She is currently with Corporate Research and Development, Qualcomm, Inc., San Diego, CA. Her research interests include statistical signal processing, wireless communications, and communication networks.

Dr. Dong received the IEEE Signal Processing Society Best Paper Award in 2004.

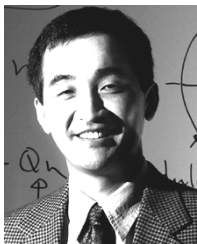


**Alex B. Gershman** (M'97–SM'98) received the Diploma (M.Sc.) and Ph.D. degrees in radiophysics from the Nizhny Novgorod State University, Nizhny Novgorod, Russia, in 1984 and 1990, respectively.

From 1984 to 1989, he was with the Radiotechnical and Radiophysical Institutes, Nizhny Novgorod. From 1989 to 1997, he was with the Institute of Applied Physics, Russian Academy of Science, Nizhny Novgorod, as a Senior Research Scientist. From the summer of 1994 until the beginning of 1995, he was a Visiting Research Fellow at

the Swiss Federal Institute of Technology, Lausanne, Switzerland. From 1995 to 1997, he was Alexander von Humboldt Fellow at Ruhr University, Bochum, Germany. From 1997 to 1999, he was a Research Associate at the Department of Electrical Engineering, Ruhr University. In 1999, he joined the Department of Electrical and Computer Engineering, McMaster University, Hamilton, ON, Canada where he is now a Professor. Currently, he also holds a visiting professorship at the Department of Communication Systems, University of Duisburg-Essen, Duisburg, Germany. His research interests are in the area of signal processing and communications, and include statistical and array signal processing, adaptive beamforming, spatial diversity in wireless communications, multiuser and MIMO communications, parameter estimation and detection, and spectral analysis. He has published over 220 technical papers in these areas.

Dr. Gershman was a recipient of the 1993 International Union of Radio Science (URSI) Young Scientist Award, the 1994 Outstanding Young Scientist Presidential Fellowship (Russia), the 1994 Swiss Academy of Engineering Science and Branco Weiss Fellowships (Switzerland), and the 1995–1996 Alexander von Humboldt Fellowship (Germany). He received the 2000 Premier's Research Excellence Award of Ontario and the 2001 Wolfgang Paul Award from the Alexander von Humboldt Foundation, Germany. He is also a recipient of the 2002 Young Explorers Prize from the Canadian Institute for Advanced Research (CIAR), which has honored Canada's top 20 researchers 40 years of age or under. He co-received the 2004 IEEE Signal Processing Society Best Paper Award. He is an Associate Editor of the IEEE TRANSACTIONS ON SIGNAL PROCESSING and the *EURASIP Journal on Wireless Communications and Networking* and a Member of both the Sensor Array and Multichannel Signal Processing (SAM) and Signal Processing Theory and Methods (SPTM) Technical Committees of the IEEE Signal Processing Society. He was Technical Co-Chair of the Third IEEE International Symposium on Signal Processing and Information Technology, Darmstadt, Germany, in December 2003. He is Technical Co-Chair of the Fourth IEEE Workshop on Sensor Array and Multichannel Signal Processing, to be held in Waltham, MA, in July 2006.



**Zhi-Quan (Tom) Luo** (M'90–SM'03) received the B.Sc. degree in applied mathematics in 1984 from Peking University, Beijing, China. Subsequently, he was selected by a joint committee of the American Mathematical Society and the Society of Industrial and Applied Mathematics to pursue the Ph.D. degree in the United States. After a one-year intensive training in mathematics and English at the Nankai Institute of Mathematics, Tianjin, China, he joined the Department of Electrical Engineering and Computer Science, Massachusetts Institute of

Technology, Cambridge, where he received the Ph.D. degree in 1989.

Upon graduation, he joined the Department of Electrical and Computer Engineering, McMaster University, Hamilton, ON, Canada, where he eventually became the Department Head and held a Canada Research Chair in Information Processing. Since April of 2003, he has been with the Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, as an ADC Chair Processor. His research interests lie in the union of optimization algorithms, data communication and signal processing, information theory, and coding.

Dr. Luo currently serves on the editorial boards for a number of international journals including the *SIAM Journal on Optimization* and *Mathematics of Operations Research*. He was a winner of the 2004 Best Paper Award from the IEEE Signal Processing Society.



**Daniel Pérez Palomar** (S'99–M'03) received the Electrical Engineering and Ph.D. degrees from the Technical University of Catalonia (UPC), Barcelona, Spain, in 1998 and 2003, respectively.

During 1998, he was with the Department of Electronic Engineering, King's College London (KCL), London, U.K. From January 1999 to December 2003, he was a Research Assistant with the Department of Signal Theory and Communications, UPC. From April to November 2001, he held a visiting research appointment at the Department of Electrical

Engineering, Stanford University, Stanford, CA. From January to December 2002, he was a visiting researcher with the Telecommunications Technological Center of Catalonia (CTTC), Barcelona. From August to November 2003, he was a Guest Researcher with the Department of Signals, Sensors, and Systems, Royal Institute of Technology (KTH), Stockholm, Sweden. From November 2003 to February 2004, he was a Visiting Researcher with the INFOCOM Department, University of Rome "La Sapienza," Rome, Italy. He is currently a Fulbright Research Fellow at Princeton University, Princeton, NJ. He has participated in several European projects such as ACTS-SUNBEAM (1999), IST-METRA (2000–2001), IST I-METRA (2001–2003), and IST ROMANTIK (2002–2004). His primary research interests include information-theoretic and communication aspects of wireless MIMO channels and array signal processing, with special emphasis on convex optimization theory applied to communications systems.

Dr. Palomar received the 2002–2003 Rosina Ribalta first prize for the Best Doctoral Thesis within the areas of information technologies and communications from the Epsom Foundation. He also received the 2003 Prize for the Best Doctoral Thesis in advanced mobile communications from the Vodafone Foundation and COIT. He has also received a Fulbright Research Fellowship.

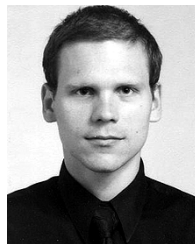


**Lang Tong** (S'87–M'91–SM'01–F'05) received the B.E. degree from Tsinghua University, Beijing, China, in 1985 and the M.S. and Ph.D. degrees in electrical engineering in 1987 and 1990, respectively, from the University of Notre Dame, Notre Dame, IN.

He was a Postdoctoral Research Affiliate at the Information Systems Laboratory, Stanford University, Stanford, CA, in 1991. Currently, he is a Professor with the School of Electrical and Computer Engineering, Cornell University, Ithaca, NY. His areas of interest include statistical signal processing,

adaptive receiver design for communication systems, signal processing for communication networks, and information theory.

Dr. Tong received the Young Investigator Award from the Office of Naval Research in 1996 and the Outstanding Young Author Award from the IEEE Circuits and Systems Society. He also received (with M. Dong) the 2004 IEEE Signal Processing Society Best Paper Award.



**Sergiy A. Vorobyov** (M'02) was born in Ukraine in 1972. He received the M.S. and Ph.D. degrees in systems and control from Kharkiv National University of Radioelectronics (KNUR), Kharkiv, Ukraine, in 1994 and 1997, respectively.

From 1995 to 2000, he was with the Control and Systems Research Laboratory at KNUR, where he became a Senior Research Scientist in 1999. From 1999 to 2001, he was with the Brain Science Institute, RIKEN, Tokyo, Japan, as a Research Scientist. From 2001 to 2003, he was with the Department of Elec-

trical and Computer Engineering, McMaster University, Hamilton, ON, Canada, as a Postdoctoral Fellow. Since 2003, he has been a Research Fellow with the Department of Communication Systems, University of Duisburg-Essen, Duisburg, Germany. He also held short-time visiting appointments at the Institute of Applied Computer Science, Karlsruhe, Germany, and Gerhard-Mercator University, Duisburg. His research interests include control theory, statistical array signal processing, blind source separation, robust adaptive beamforming, and wireless and multicarrier communications.

Dr. Vorobyov was a recipient of the 1996–1998 Young Scientist Fellowship of the Ukrainian Cabinet of Ministers, the 1996 and 1997 Young Scientist Research Grants from the George Soros Foundation, and the 1999 DAAD Fellowship (Germany). He co-received the 2004 IEEE Signal Processing Society Best Paper Award.