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Independent Component Analyses, Compressive Sampling, Large Data Analyses (LDA), Neural Networks, Biosystems, and Nanoengineering XIII

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Editors

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Introduction

This year's exciting conference Proceedings features frontier sensor and technology research in human science components: independent component analyses, compressive sampling, large data analyses (LDA), neural networks, biosystems, and nanoengineering. This research is increasing important as the baby-boomer generation continues to age. These components are increased yearly according to the community's need. For example, the Adaptive Wavelet Pioneer Award was folded into a new and emerging category called Large Data Analysis which is slightly different in computational intelligence (CI) from a brute force law enforcement need of big data analyses. Through the tremendous contributions from authors, presenters, and attendees, new ideas and technologies can be carried to the world and serve the aging global village.

Historically, our section has been part of the SPIE Defense, Security and Sensing Symposium, and is now highlighted in the Sensing Technology + Applications (STA) section. These conference Proceedings serve as a wonderful reflection of the work presented this year, but nothing can replace physically attending and interacting with our talented scientists and investigators. The Pioneer Awardees for this year were selected by past recipients, and the nomination and selection committee was chaired by the recipients listed below. The 2015 recipients and 2014 former recipients will serve as the nomination and selection committee chair and co-chair for the next year's 2016 conference:

- Large Data Analysis Pioneer Award: Ronald Coifman, Yale University (United States), "Automatic organization and signal processing of databases"
- Biomedical Wellness Pioneer Award: John Hossack, University of Virginia (United States), "Catheter ultrasound for cross-sectional imaging and drug delivery to vessel wall"
- Unsupervised Learning ICA Pioneer Award: Nobutaka Ono, National Institute of Informatics (Japan), "Auxiliary function approach to independent component analysis and independent vector analysis"
- Compressive Sampling Pioneer Award: Joel Tropp, California Institute of Technology (United States), "Sampling theorems for structured signals"
- System Biology Pioneer Award: Andrew Ewald, Johns Hopkins University (United States), "Quantitative real-time analysis of collective cancer invasion and dissemination"
- Nanoengineering Pioneer Award: Michael McAlpine, Princeton University (United States), "3D printed bionic nano-material"
- Leadership Award: Paul Werbos, The University of Memphis (United States), "Computational Intelligence from AI to BI and NI."

We thank you for making 2015 a successful and memorable year, and encourage past, present, and future associates to participate in the knowledge discovery and sharing through SPIE. A tangible measure of the success of annual conferences is how much collaboration results from the former conferences. Thus, it is the duty and obligation of Chairs to facilitate dialogue among presenters and audiences.

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