News Release

ADEL BELOUCHRANI, NAMED 2020 IEEE FELLOW

Piscataway, New Jersey, USA, January 2020: Adel BELOUCHRANI, Professor, from Ecole Nationale Polytechnique, Algiers, Algeria, has been named an IEEE Fellow. He is being recognized **"for contributions to blind source separation and to non-stationary signal and array processing. ‘’**

Professor Adel Belouchrani is among the pioneering researchers who contributed to the field of blind source separation. His contributions began with the emergence of this field, and has been advancing state of the art in this field over his entire professional career. His first contribution is a fundamental shift in how the problem is approached and solved; he has derived efficient algorithms based exclusively on second order statistics, in lieu of the commonly used high order statistics methods used at that time. In his highly cited 1997 IEEE-TSP seminal paper "A blind source separation technique using second order statistics," he introduced the SOBI algorithm, a source separation technique based on joint diagonalization of a set of correlation matrices, together with its theoretical performance analysis. At the 1994 EUSIPCO conference, Edinburgh, Scotland, U.K., he has been the first to consider the specific problem of blind source separation for the underdetermined case of more sources than sensors.

Professor Belouchrani has been leading the field of array processing for non-stationary signals, producing groundbreaking contributions over more than two decades. He developed key algorithms enabling signal analysis and processing for non-stationary signals impinging on sensor arrays. These signals vary their frequencies with time and correspond to a broad class of active sensing modalities, including sonar and radar. They characterize many passive sensing problems, such as speech and electromyography recordings. Professor Belouchrani is the first to introduce time-frequency distributions to Angle of Arrival estimation and blind source separation problems. His original contribution has brought together, for the first time, two different signal-processing communities, namely the Time frequency Analysis community and the Array signal Processing community. Earlier, at the 1996-SPIE Conference on Advanced algorithms and Architectures for Signal Processing, Denver, Colorado, he introduced the concept of Spatial Time Frequency Distribution (STFD) defining a novel tool for array processing of non-stationary signals. Such contribution allows significant performance improvement and solving problems that could not otherwise be addressed under commonly used stationary assumptions.

The IEEE Grade of Fellow is conferred by the IEEE Board of Directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. The total number selected in any one year cannot exceed one-tenth of one- percent of the total voting membership. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and an important career achievement. **So far, a total of 9 professors in Africa have been awarded such recognition, including Professor Adel Belouchrani, who is also the first recipient in Algeria.**

About IEEE

The IEEE, founded in 1884, is the world's leading professional association for advancing technology for humanity. Through its 400,000 plus members in 160 countries, the association is a leading authority on a wide variety of areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics. Dedicated to the advancement of technology, the IEEE publishes 30 percent of the world's literature in the electrical and electronics engineering and computer science fields, and has developed more than 1300 active industry standards. The association also sponsors or co-sponsors nearly 1700 international technical conferences each year. If you would like to learn more about IEEE or the IEEE Fellow Program, please visit www.ieee.org.