

Blind Source Separation: from basic concepts to new challenges

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Speaker:

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Abstract:

Blind source separation (BSS) is a fundamental problem in signal processing that is sometimes known under different names: blind array processing, signal copy, independent component analysis (ICA), waveform preserving estimation, etc. In all these instances, the underlying model is that of m 'statistically independent' signals whose n (possibly noisy) linear combinations are observed. Neither the structure of the linear combinations nor the source signals are known to the receivers. In this environment, we want to identify the linear combinations (blind identification problem) and de-couple the linear combinations (blind source de-coupling). In this presentation addressed to a broad audience with general background in signal processing, I'll cover the following items:

- Application examples and basics concepts of BSS
- Source separation using the ICA concept
- New challenges and open problems in BSS.

Bio:

Karim Abed-Meraim was born in 1967. He received the State Engineering Degree from Ecole Polytechnique, Palaiseau, France, in 1990, the State Engineering Degree from Ecole Nationale Supérieure des Télécommunications (ENST), Paris, France, in 1992, the M.Sc. degree from Paris XI University, Orsay, France, in 1992 and the Ph.D. degree from the ENST in 1995 (in the field of Signal Processing and communications).

From 1995 to 1998, he took a position as a research staff at the Electrical Engineering Department of the University of Melbourne where he worked on several research project related to "Blind System Identification for Wireless Communications", "Blind Source Separation", and "Array Processing for Communications", respectively.

From 1998 to 2012 he has been Assistant then Associate Professor at the Signal and Image Processing Department of Telecom-ParisTech. His research interests are in signal processing for communications, adaptive filtering and tracking, array processing and statistical performance analysis.

In September 2012 he joined the University d'Orléans (PRISME Lab.) as a full Professor.

He is the author of over 450 scientific publications including book chapters, patents, and international journal and conference papers.