NEW BLIND SOURCE SEPARATION ALGORITHM FOR CYCLOSTATIONARY SIGNAL ESTIMATION BASED ON SECOND ORDER STATISTICS (ThuAmOR9)

Author(s) :

Noureddine Bouguerriou (LESI Chartres, France)
Cecile Capdessus (LESI Chartres, France)
Michel Haritopoulos (LESI Chartres, France)
Stephanie Bretteil (LESI Orléans, France)
Lévi Allam (LESI Chartres, France)

Abstract :

Blind Source Separation (BSS) is a general signal processing method, which consists in recovering, from a set of observations recorded by sensors, the contributions of different physical sources independently from the propagation medium and without any a priori knowledge of the sources. All BSS algorithms are based on the assumption that the sources are statistically independent and generally stationary processes. But, real sources are not necessarily stationary processes. In this paper, we are considering the mixture of two sources. The first one is cyclostationary and the second is a stationary process. Our aim is to elaborate a new BSS algorithm able to restore the cyclostationary process by using only the knowledge of its fundamental cyclic frequency and the second order statistical properties of the sources. Indeed, in some applications, e.g. telecommunications, diagnosis of rotating machines; this information is available.

Menu