

# Abstract

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## **Block-Data-Based Gradient Adaptive MBER Beamforming using Variable Kernel Estimator**

The minimum bit error rate (MBER) beamforming is one of the intelligent adaptive beamforming techniques used in smart antenna (SA) system. It directly minimizes the BER performance. It is based on the approximating the probability density function (pdf) of the beamformer's output using block-data-adaptive MBER algorithm which iteratively minimizes the estimated BER by adjusting the beamformer weights. There are many pdf estimators can be utilized to approximate the unknown pdf from the observed data. A widely used of approximating a pdf is known as the kernel Parzen window-based estimator. This approach, however, suffers from slight drawback when applied to the data from long-tailed distributions. In this paper, a variable kernel estimator is proposed to overcome this difficulty and enhance the BER performance.