Projection Design for Compressive Source Separation using Mean Errors and Cross-Validation

Supplemental Material

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This document contains supplemental results on source separation from real image binary mixtures using the proposed method. The separation is carried out in the compressive regime with 12.5% measurements. For the set of experiments in this document, we compare the projections with the proposed method \((k = 0)\) with projections based on the upper bound [1] and random projections. Each image consists of measurements taken on non-overlapping 16 \times 16 blocks, as per the Block-SPC framework [2, 3]

\[ y_i = \Phi(x_i + \lambda c_i) + \eta_i \]  

with 2% noise. Results on images from standardized datasets [4, 5] with \(\lambda = 0.2\) are shown in figures 1–4, and with \(\lambda = 0.1\) are shown in figures 5–8. For each figure: (a) source signal \(x\), (b) source signal \(c\), (c) binary mixture \(x + \lambda c\), (d) \(\hat{x}\) with random projection, (e) \(\hat{x}\) with [1], and (f) \(\hat{x}\) with proposed scheme.

References


Figure 1

Figure 2
Figure 5

Figure 6
Figure 8