Sparse Coding Minimizing ℓ_0: Matching Pursuit Variants

Mathematical Models and Methods for Image Processing

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Assignment

Matching Pursuit Variants

Implement all the variants of the Matching Pursuit

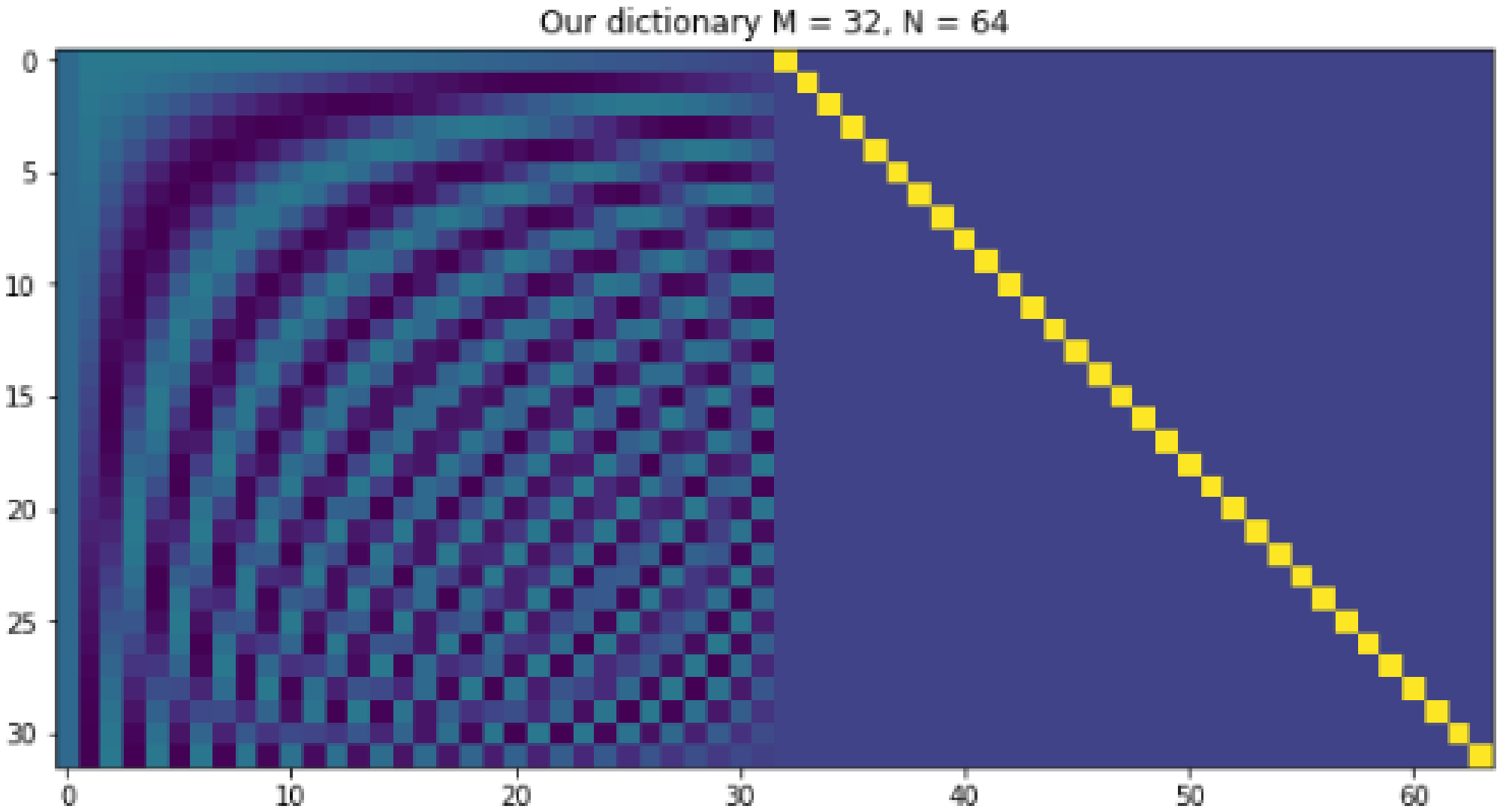
Take the setup of Assignment 7

- Implement OMP and LSOMP to solve

$$\hat{\boldsymbol{x}} = \underset{\boldsymbol{x}\in\mathbb{R}^M}{\operatorname{argmin}} \|\boldsymbol{x}\|_0 \quad \text{s.t.} \quad D\boldsymbol{x} = \boldsymbol{s}$$

- Where $D = [DCT, C]$ and $\boldsymbol{s}$ is an L −sparse signal w.r.t DCT and 1 −sparse signal w.r.t. the canonical basis C

The Dictionary



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The Signal and Coefficients