

- (a) The sensing matrix ϕ in the video compressed sensing architecture of Hitomi is a very specific matrix with T diagonal matrices horizontally concatenated with each other. The measurement vector \mathbf{y} is $\Phi \mathbf{f}$ where \mathbf{f} is T sub-frames information vertically concatenated. This creates a sense of distinction between frames by preserving the frame information with the time resulting in an accurate reconstruction. If instead, a generic IID Gaussian random matrix is used as a sensing matrix then we will lose this sense of distinction and the reconstruction will not be accurate.
- (b) The theory learnt in class can't be directly applied here as we have not discussed RIP or mutual coherence behaviour for such measurement matrices Φ which will help in applying the learnt theorems.