

On the compression of compressed sensing measurements

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Abstract

Quantization is a necessary intermediate step in any digital processing device. The Memoryless Scalar quantization and the Sigma Delta quantization are two well known quantization schemes with different emphasis. In this talk, I will discuss the quantization problem raised in frame theory and compressed sensing, and explain the benefit that Sigma Delta quantization can deliver. In particular, we propose an encoding and decoding scheme for both sub-Gaussian and sub-Fourier sensing matrices which yields an estimate of the original signal with exponentially decaying error as we increase the number of bits, a rate known to be optimal. Potential applications to image compression will be briefly discussed.