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Mark Iwen, Rayan Saab* (rsaab@ucsd.edu), **Rongrong Wang** and **Ozgur Yilmaz**. *Random encoding of quantized frame coefficients and quantized compressed sensing measurements.*

Frames generalize the notion of bases and provide a useful tool for modeling the measurement (or sampling) process in several modern signal processing applications. In the digital era, such a measurement process is typically followed by quantization, or digitization.

In the case of Sigma-Delta quantization of frame coefficients, we show that a simple post-processing step consisting of a discrete random Johnson-Lindenstrauss embedding of the integrated bit-stream yields near-optimal approximation accuracy as a function of the number of bits used. The result holds with high probability on the draw of the embedding, allows efficient reconstruction, and holds for a wide class of frames including smooth frames and random frames. (Joint work with Mark Iwen.)

We also show that if the same encoding scheme is applied to quantized compressed sensing measurements (with a different reconstruction scheme), it also yields near-optimal approximation accuracy as a function of the bit-rate. (Joint work with Rongrong Wang and Ozgur Yilmaz.) (Received August 07, 2014)