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*Embracing Off-the-Grid Samples.*

This work considers frugal acquisition and denoising of bandlimited signals via *off-the-grid* samples, i.e., samples taken at locations randomly deviated from an equispaced grid. Using the theory of compressive sensing, we incorporate the nonuniform grid into the basis pursuit problem as our interpolation scheme. We show that if  $\mathcal{O}(s \log(2e\omega/s))$  off-the-grid samples of an  $\omega$ -bandlimited signal are obtained, our methodology approximates the signal of interest with reconstruction error proportional to the measurement noise level and the error of the best  $s$ -sparse approximation. The average sampling density required is drastically reduced for compressible signals in comparison to standard conditions (e.g., Nyquist rate, Landau density) and we extend our results to 2D signals via the theory of low-rank matrix recovery. (Received July 30, 2017)