Sampling recovery in the uniform norm

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We consider the problem of function recovery from n function values in the uniform norm using a weighted least squares algorithm. The values are taken from a subsampled set of independent and identically distributed random samples. It has been shown that the discrete information on functions is as powerful as arbitrary linear information. In addition to the reproducing kernel Hilbert space setting, we obtain results for general non-Hilbert classes in terms of the inverse of Christoffel function and the best L_2-approximation according to specific finite-dimensional spaces.

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