

Localized bases for kernel spaces

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A well known issue for kernel approximation is the conditioning of the standard basis: as the dimension of the underlying space increases, the practicality of working directly with linear combinations of kernels decreases rapidly. Recently, it has been shown that in some important cases it is possible to produce well-localized, stable bases that are cheap to construct and permit stable and efficient computation. In this talk, I will discuss a simple algorithm used to construct such bases and present a new approximation scheme employing local bases that has optimal (linear) approximation orders, works directly on scattered data, and has a fast implementation.