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# Preconditioners for Image Deblurring from Low-rank Tensor Approximations

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In this talk, we consider the construction of preconditioners for two-dimensional image deblurring. First, we make an approximation that allows us to model the blurring as a special product between a third order tensor and a two-dimensional image. Building on a new notion of tensor SVD, we express the tensor as a sum of so called *matrix outer products*. To build the preconditioner with the appropriate level of noise filtering, we truncate the expansion. The preconditioner is then defined by computing the tensor left inverse of the truncated expansion. Some of the computations can be interleaved for greater processing efficiency. We will give preliminary results illustrating the potential of this approach.