

Rank-adaptive tensor recovery for sparse function learning

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January 16, 2020

Motivated by kernel regression we parameterize multivariate function spaces by tensors and formulate the function learning task as a tensor recovery problem. To avoid the curse of dimensions, practicable recovery algorithms need to operate on low-rank manifolds of the tensor space. We will introduce a notion of sparsity related to separation ranks of multivariate functions and compare sparsity-enforcing algorithms with a common kernel regression solver. To apply the alternating least squares scheme to the extraction of dynamical laws, we discuss its rank-adaptive generalization, which requires the solution of its instability problem.