

## Sparsity in Learning

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Machine learning aims at discovering regularities from examples. In this process, sparsity can be introduced from different perspectives. For a given task, it can target (1) computational efficiency, by avoiding to process insignificant pieces of information; (2) interpretability, by putting forward the salient pieces of information; (3) prediction accuracy, by introducing an induction bias preventing overfitting to the training examples. I will use geometry to introduce some properties of sparsity inducing penalties: how is sparsity encouraged and how to interpret it in a robust optimization framework.