Simulation based uncertainty handling with polyhedral clouds

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Abstract

Past studies of uncertainty handling with polyhedral clouds have already shown strength in dealing with higher dimensional uncertainties in robust optimization, even in case of partial ignorance of statistical information. However, in thousands or more dimensions current implementations would still be computationally too expensive to be useful in real-life applications.

In this paper we propose a simulation based approach for optimization over a polyhedron, inspired by the Cauchy deviates method. Thus we achieve a computationally efficient method to use polyhedral clouds also in very high dimensions.