

Title: Nonlinearities in stochastic programming problems. Application to risk control

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Abstract: In this work we are interested in two-stage stochastic problems. Presented work is divided into four chapters. In the first one we introduce the necessary background for further chapters, at first for linear, later on for polyhedral objective function. In second and third chapters we present several algorithms and software, which can be used to solve stochastic problems. Most of the algorithms are based on L-shaped method, whose variant range from linear to polyhedral, quadratic and finally convex problem. In the last chapter we apply some of mentioned algorithms and software on a practical problem involving conditional value at risk and compare them.

Keywords: two-stage programming, algorithms, software, CVaR.