

PhD research topic proposal
BME, Doctoral School of Mathematics and Computer Science

Name of supervisor :

Edith Alice Kovács

Degree:

PhD

Title of the topic:

Stochastic Optimization Models with Applications

Short description:

Majority of the deterministic mathematical programming problems have a compact formulation in terms of algebraic equations. Stochastic programming is needed when exogenous parameters of the mathematical programming problem are random. The general task can be formulated as the research on decision-making methods under uncertainty. This leads to multivariate probability distribution modeling based on existing data and scenario generation. Product supply chain models, energy distribution models, and portfolio optimization methods require scenario generation to optimize decisions under uncertainty.

An important challenge to be tackled is the high dimensional random parameter space which is a crucial problem for many optimization algorithms.

The applicant should introduce new methods for the statistical modeling of the data, and develop new algorithms for optimization that can be applied to real data problems. Simulation and visualization will be also important aspects of modeling.

Requirements:

The applicant should have an interest in optimization and statistics, a background in algebra, operations research probability theory, and statistics. Mathematical and computational modeling skills are an advantage.

Contact:

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Place of work:

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