

On Objective Function Representation Methods in Optimization

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Abstract. The problem of representation (or decomposition) of a continuous function and its use in optimization has been well studied. The most well known and used methods include the representation of functions as the difference of two convex functions (DC optimization) or difference of two monotonically increasing functions (Monotonic Optimization). Other techniques include reduction to separability (total or partial), and methods based on Kolomogorov's superposition theorem.

After a summary of existing work, we will focus on DC discrete optimization. In particular, we are going to discuss details for the solution of degree-constrained fault-tolerant spanning subgraph problem by DC optimization.