
YVES LUCET, UBC Okanagan

Recent Developments in Computational Convex Analysis: Convex Hulls and Graph-Matrix Calculus

We present a couple of algorithms to compute the convex envelope of piecewise linear-quadratic (PLQ) univariate functions. The first is simple to implement but has quadratic complexity while the second is more involved but has linear time complexity. In addition, we present a new family of algorithms for computing convex operators of PLQ functions by manipulating the graph of the subdifferential using Goebel's graph-matrix calculus rules.