

Piece Adding Technique and its applications in optimization

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A function is called a piecewise convex if it can be expressed as a minimum of a finite set of convex functions.

In this presentation, first, we highlight the generality of piecewise convex functions. Then, we provide a global search algorithm for maximizing a piecewise convex function over a compact set.

We propose to iteratively refine the function F at local solutions by new convex functions (pieces). These functions are called a patch when it avoids returning back to the same local solution.

We will see also how some classes of non-convex optimization problems can be handled by the proposed approach.