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Title: "Linear and Nonlinear Superiorization: A Methodology between Feasibility-Seeking and Optimization."

Abstract: The superiorization methodology works by taking an iterative algorithm, investigating its perturbation resilience, and then using proactively such perturbations in order to "force" the perturbed algorithm to do in addition to its original task something useful.

If the original algorithm is computationally efficient and useful in terms of the application at hand, and if the perturbations are simple and not expensive then the advantage of this method is that, for essentially the computational cost of the original algorithm, we are able to get something more by steering its iterates according to the perturbations.

An important case is when the original algorithm is a feasibility-seeking algorithm, or one that strives to find constraint-compatible points for a family of constraints, and the perturbations that are interlaced into it aim at reducing (not necessarily minimizing) a given merit function.