

1171-90-245

Fabio Vitor* (ftorresvitor@unomaha.edu), Department of Mathematics, 6001 Dodge Street, Omaha, NE 68182. *One vs. Two vs. Multidimensional Searches: Changing the Paradigm in Optimization Methods.*

This talk will introduce multidimensional searches in optimization algorithms. Differently than the traditional one-dimensional search methods, these techniques search over the space of feasible solutions through multiple search directions. The talk will focus primarily on linear programming and some insights will be presented to extend the concept to nonlinear optimization. Traditional one-dimensional search methods will be discussed and compared to some recently developed multidimensional search algorithms. Some novel theoretical and computational results will also be presented. The talk will discuss the challenges in developing and implementing these techniques in commercial and open-source mathematical programming solvers, as well as their potential to change these software to solve optimization problems. (Received August 17, 2021)