

1025-49-123

Casey D. Trail* (cdtrail@gmail.com), 123 Bachelor Hall, Dept. of Mathematics & Statistics, Miami University, Oxford, OH, **Olga A. Brezhneva** (brezhnoa@muohio.edu), Dept. of Mathematics & Statistics, Miami University, Bachelor Hall 123, Oxford, OH, **Amit Shukla** (shuklaa@muohio.edu), 056P EGB, Dept. of Mechanical & Manufacturing Engineer., Miami University, Oxford, OH, and **Mark A. Abramson** (Mark.Abramson@afit.edu), Air Force Institute of Technology, Department of Mathematics & Statistics, AFIT/ENC Building 641, 2950 Hobson Way, Wright-Patterson AFB, OH. *Variations on the Normal Boundary Intersection Method for Multiple-Objective Optimization.*

The Normal Boundary Intersection (NBI) method is used to produce several Pareto optimal points for a general nonlinear multicriteria optimization problem. These Pareto points capture the trade-off among the various conflicting objective functions. This method is especially useful in identifying an evenly distributed set of points from the Pareto set in problems where the popular method of minimizing weighted combinations of objective functions fails to do so. In this talk we examine how NBI performs on a specific test problem where one of the objective functions is not convex. We also discuss the formulation of difficult test problems that cause classic problems under other methods of multi-objective optimization. We then consider modifications of NBI that may allow for a resolution of these difficulties. (Received January 23, 2007)