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Junior Barrera* (j.barrera@uol.com.br), Rua do Matao, 1010, Sao Paulo, SP, Brazil. *A branch-and-bound optimization algorithm for U-shaped cost functions on Boolean lattices.*

This paper presents a combinatorial optimization problem with the following characteristics: i.the search space is composed of 2^n objects organized as a Boolean lattice; ii.the cost function forms a U-shaped curve when applied to all elements of any maximal chain of the lattice. This formulation applies for feature selection in the context of Pattern Recognition. The known approaches for these problems are heuristics that explore partially the search space, without being equivalent to the full search. This paper presents a branch-and-bound solution that uses the Boolean lattice structure and the U-shaped curves to explore a subset of the search space that is equivalent to the full search. Some applications on W-operator design and genetic network architecture identification illustrate the results presented. (Received February 14, 2008)