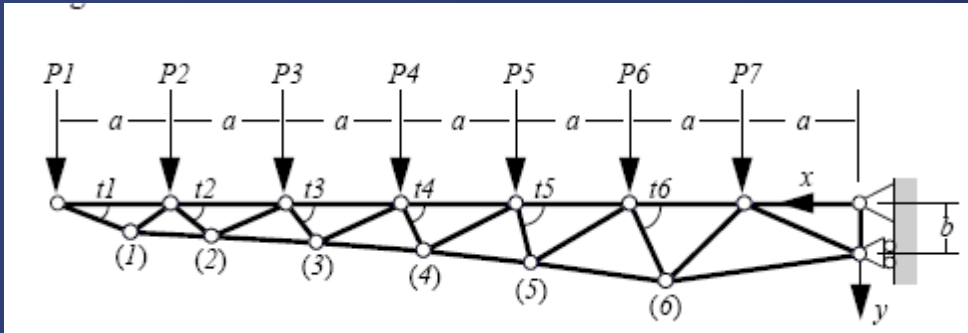


Bridge Design Optimization

Purpose: to minimize the weight or cost subject to a given set of loads



The bridge is supported at the right edge and free at the left edge. It has six joints (numbered 1-6 above) whose positions are chosen by the optimizer so as to minimize the weight or cost subject to a given set of loads P_1 - P_7 . The weight is computed by determining the minimum bar dimensions that can support the applied load. Output parameters of the analysis are the truss weight, cost, angles t_1 - t_6 , minimum and maximum bar lengths, and internal forces in each member.

Number of designed variables 42

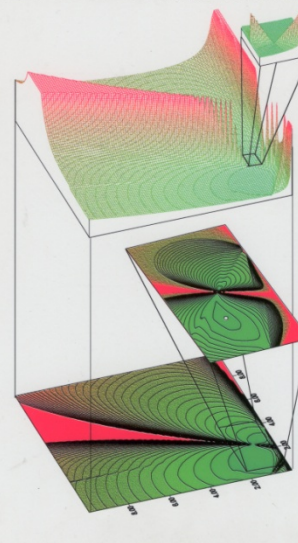
Result: 5% efficiency improvement

Bridge Design Optimization

Purpose: to minimize the weight or cost subject to a given set of loads

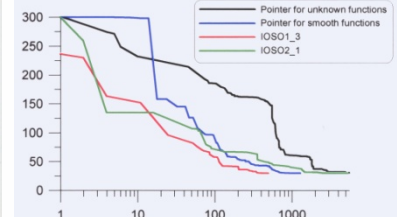
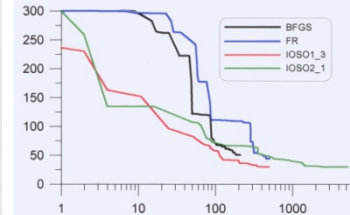


TRUSS OPTIMIZATION PROBLEM TOPOLOGY



RESULTS OF THE TRUSS OPTIMIZATION PROBLEM
(Analysis code developed by Synaps, Inc.)

Dimensionality: 12 variables



Improve efficiency up 5%

Sigma Technology