Recent Developments in Large-Scale Nonlinear Optimization

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Constrained optimization problems arise in many applications, ranging from the optimal control of a spacecraft, to the design of both finalists in the America's Cup yacht race.

Recent years have seen the emergence of reliable methods that can solve constrained optimization problems with many thousands of variables and constraints. We review the main features of these methods and discuss their impact on the solution of some important practical problems in science and engineering.

We conclude with some speculation concerning which methods are likely to be "hot" over the next few years.