

## **Progress in Linear and Integer Programming and Emergence of Constraint Programming**

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### **Abstract:**

Over the past 15 years, a revolution has occurred with respect to the ability to solve large-scale linear and mixed integer programs. Problems with millions of constraints and variables are routinely solved on desktop workstations. This progress has occurred due to the better computer hardware, software tools, data availability, and algorithmic innovation. The first part of this talk will provide a description of the improvements that have occurred.

In parallel, a new technique called constraint programming has emerged as an alternative for solving difficult combinatorial problems. As opposed to mathematical programming techniques that are based on numerical algorithms, constraint programming is a computer programming technique that combines the ideas of modeling and search algorithms in order to solve difficult problems. The second part of this talk will describe some constraint programming applications and contrast its techniques with those of mathematical programming.