

S+NuOPT[®]



+ Cutting-edge Numerical Optimization Software

S+NuOPT[®] is a sophisticated optimization package with the ability to efficiently solve linear and nonlinear optimization problems with thousands of variables and constraints. This S-PLUS[®] module is designed to solve a wide range of problems, from linear programming through Mixed Integer Programming (MIP) to constrained nonlinear optimization.

S+NuOPT is designed for large-scale, complex problems and there is no software limitation on the problem size. Offering state-of-art primal dual interior point methods as well as the SIMPLEX method along with sequential quadratic programming and active set method, it ensures efficient optimal solutions for both small and large problems.

+ Unsurpassed Flexibility and Reliability

+ Keeping it SIMPLE

Using S+NuOPT's SIMPLE modeling language you can efficiently specify complex nonlinear models. Your optimization models seamlessly integrate with graphical analysis and statistical modeling available in S-PLUS.

You can trust your results. S+NuOPT has been tested on about a thousand standard testing problems (small and large) and can

solve virtually all of these without any parameter tuning.

Whether you are using a desktop PC or a UNIX[®] workstation you can solve very large, real-world problems without needing to simplify assumptions or reformulate the problem.

Types of Problems Processed

- Linear and Quadratic Programming
- Mixed Integer Programming (MIP)
- Constrained and Unconstrained Nonlinear Optimization
- Multi-objective Programming

+ Solve Your Most Challenging Optimization Problems

+ Sample Applications

Portfolio Optimization

- Optimize portfolios of assets incorporating a variety of realistic constraints, going well beyond the classical Mean-Variance (Markowitz) formulation.
- Build complex models that combine different classes of assets and subgroups of assets simultaneously.
- Solve problems involving large portfolios efficiently.

Nonlinear and Rigorous Statistical Modeling

- Apply new penalized and robust regression methods to very large data sets
- Use global fitting criterion to find better parameter estimates for nonparametric models

Mixed Integer Programming in Quantitative Finance

Basket Selection:

determine optimum basket of trades given that only a maximum number of trades are allowed along with other turnover constraints

Cardinality Constraints (number of named constraints):

optimize performance while limiting the total number of holdings (both long and short) in your final portfolio

Buy In Threshold Constraints:

include or exclude small holdings or trades based upon minimum buy and sell levels

Round Lots:

restrict transactions in integer multiples of round lots

Lower Partial Moments:

optimize on downside deviation, declare and use integer variables and solve your problems more efficiently and elegantly

System Requirements

S+NuOPT® 1.6 requires S-PLUS® 7.0

WINDOWS® SYSTEMS REQUIREMENTS

- Windows XP Home
- Windows XP Professional
- Windows XP 2000
- Windows 2003 Server (32-bit)

Sun® Solaris® and LINUX® SYSTEM REQUIREMENTS

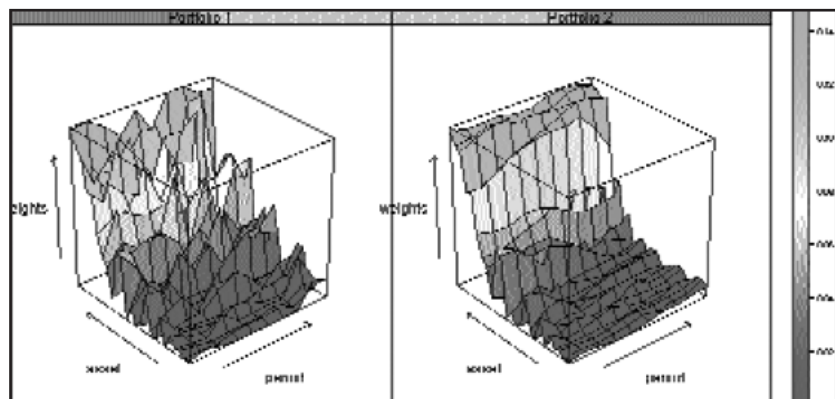
- Solaris 2.8, 2.9 (SPARC 32-bit)
- Red Hat® Enterprise 3 (32-bit)

"S+NuOPT's Mixed Integer Programming (MIP) capabilities empower analysts and portfolio managers to handle everyday problems and trading constraints like round lot trading, trading cost limits, buy in thresholds and many more. Uniquely, S+NuOPT lets you define optimization problems with nearly the same notations used in the leading portfolio texts. This intuitive approach greatly reduces the complexity of addressing large-scale problems."

*Dr. Bernd Scherer,
Advanced Applications Group Europe,
Deutsche Asset Management*

Figure 1

Optimized portfolio weights computed using two different methods. The weights on the left are rebalanced during the previous time period. The weights on the right are constrained to smoothly evolve from one time period to the next, resulting in a more stable portfolio application.



+ For more information please visit www.insightful.com or email info@insightful.com

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About Insightful Corporation:

Insightful Corporation (NASDAQ: IFUL) is a leading provider of predictive analytics and reporting solutions that provide companies the *knowledge to act*™. Insightful products allow companies to perform sophisticated statistical data analysis and data mining, and to create high-quality graphics from numeric and text data. Insightful consulting services provide specialized expertise and proven processes for the design, development and deployment of customized solutions.

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