SOL - The Stanford Solvers

The TOMLAB /SOL toolbox efficiently integrates the well-known solvers developed by the Stanford Systems Optimization Laboratory (SOL) with MATLAB and TOMLAB. The toolbox includes:

- The sparse general nonlinear SQP solver SNOPT.

- The sparse convex quadratic solver SQOPT.

- The dense general constrained nonlinear SQP solver NPSOL.

- The dense constrained linear least squares and convex quadratic programming solver LSSOL.

- The dense constrained nonlinear least squares solver NLSSOL, based on NPSOL.

- The reduced-gradient solver MINOS for nonlinear programming.

- The dense LP and QP solvers LPOPT and QPOPT.

Main Features

➢ It is easy to use **warm starts** for the SOL solvers, and further speed up sequences of optimization solutions.

➢ NPSOL has been used intensively in control applications because of its speed and robustness.

➢ All SOL solvers may be used as sub problem solvers for other TOMLAB solvers.

➢ NPSOL and SNOPT may estimate derivatives internally, faster than using any of the five TOMLAB methods. It is generally recommended to use the source transformation package tomSym or MAD for automatic differentiation.