Artelys

OPTIMIZATION SOLUTIONS

KNITRO® 13.1

Fast. Powerful. Reliable.

The most advanced solver for nonlinear optimization

▌ Efficient & robust solution on large scale problems

▌ Four interior-point/active-set algorithms for NLP

▌ Three MINLP algorithms for discrete optimization

▌ Complementarity constraints for equilibrium problems

▌ Parallel multi-start method for global optimization

▌ Many extra features based on customer feedbacks

▌ Easy to use and well documented

www.artelys.com

Think one step ahead...
and let Artelys Knitro be your competitive advantage!

The optimization techniques used by Artelys Knitro offer the leading combination of computational efficiency and robustness. Artelys Knitro is the only nonlinear solver with seven different algorithms, allowing it to solve a large range of complex nonlinear problems.

Key features

- Efficient and robust solution on large scale problems
- Two interior-point/barrier and two active-set/SQP algorithms
- Three algorithms for mixed-integer nonlinear optimization
- Heuristics, cutting planes, branching rules for MINLP
- Parallel multistart feature for global optimization
- Ability to run multiple algorithms concurrently
- Automatic and parallel tuning of option settings
- Automatic computation of approximate first-order and second-order derivatives
- Smart initialization strategies and fast infeasibility detection

New Artelys Knitro 13.1 features

- On average **3 times faster** than version 13.0 for MINLP problems
- New **noise estimation routine** for noisy black-box optimization problems
- New MATLAB «problem-based» interface
- Performance improvement on Apple Silicon
- **New heuristic** for solving models with complementary constrainsts (MPEC)

Problem classes solved by Artelys Knitro

- General nonlinear problems (NLP), including non-convex
- Systems of nonlinear equations
- Linear problems (LP)
- Quadratic problems (QP/QCQP), both convex and non-convex
- Least squares problems / regression, both linear and nonlinear
- Second-order cone programs (SOCP) including nonlinear constraints and objective
- Mathematical programs with complementarity constraints (MPCC/MPEC)
- Mixed-integer nonlinear problems (MIP/MINLP)
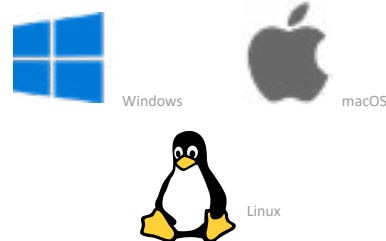- Derivative-free optimization problems (DFO)

MODELING SYSTEMS

PROGRAMMING INTERFACES

OPERATING SYSTEMS

Windows   macOS   Linux

Online Artelys Knitro documentation
www.artelys.com/tools/knitro_doc

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Artelys develops and supports Knitro worldwide.