Interactive multiobjective optimization system



Operating and freely available on the Internet at http://nimbus.it.jyu.fi/ for research and academic applications

IND-NIMBUS® for sale for non-academic applications http://ind-nimbus.it.jyu.fi/

NIMBUS® is a tool for

- interactive decision support and trade-off analysis
- balancing between several conflicting criteria
- analysing interrelationships between different objectives

NIMBUS® can solve problems with

- several conflicting objectives to be minimized or maximized subject to equality and inequality constraints
- nonlinear and even complicated functions
- continuous and integer-valued variables
- local and global Pareto optima

NIMBUS® is based on classification of objectives

• idea is to move around the Pareto optimal set where improvement in some objective function values is possible only at the expense of impairment in some other

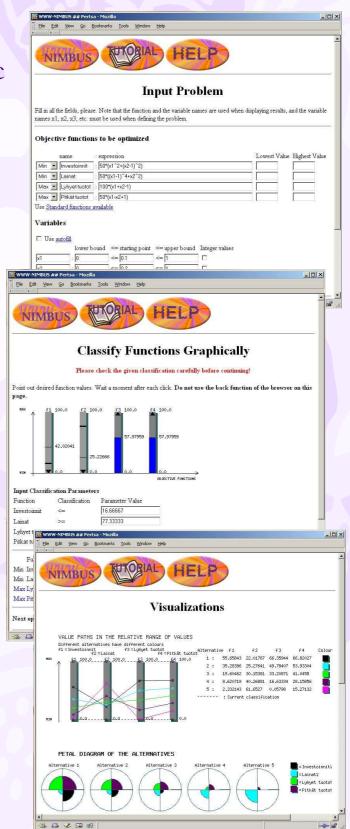
objectives

- user can indicate what kind of changes are desirable in the objective function values
- user can learn about the problem and get new insight
- user directs the solution process

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Features of WWW-NIMBUS®

- freely available for academic applications
- always the latest version in use
- interactive and graphical decision support
- database management available
- operates via the Internet, no software to be downloaded
- only a browser and a connection to the Internet required
- possibility to save user's problems (personal username and password)
- centralized computing and distributed interface
- server computer at the University of Jyväskylä



IND-NIMBUS® is for sale for non-academic use

for different operating systems

• tested with several industrial problems

same ideology as in WWW-NIMBUS®

- can be connected with different simulator or modelling tools
- available for BALAS®



Further Information

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- 3. Hakanen J., Miettinen K., Mäkelä M.M. and Manninen J., On Interactive Multiobjective Optimization with NIMBUS in Chemical Process Design, Journal of Multi-Criteria Decision Analysis 13(2-3), 125-134, 2005.
- 4. Heikkola E., Miettinen K. and Nieminen P., Multiobjective Optimization of an Ultrasonic Transducer using NIMBUS, Ultrasonics 44(4), 368-380, 2006.
- 5. Miettinen K. and Mäkelä M.M., Synchronous Approach in Interactive Multiobjective Optimization, European Journal of Operational Research 170(3), 909-922, 2006.

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