

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

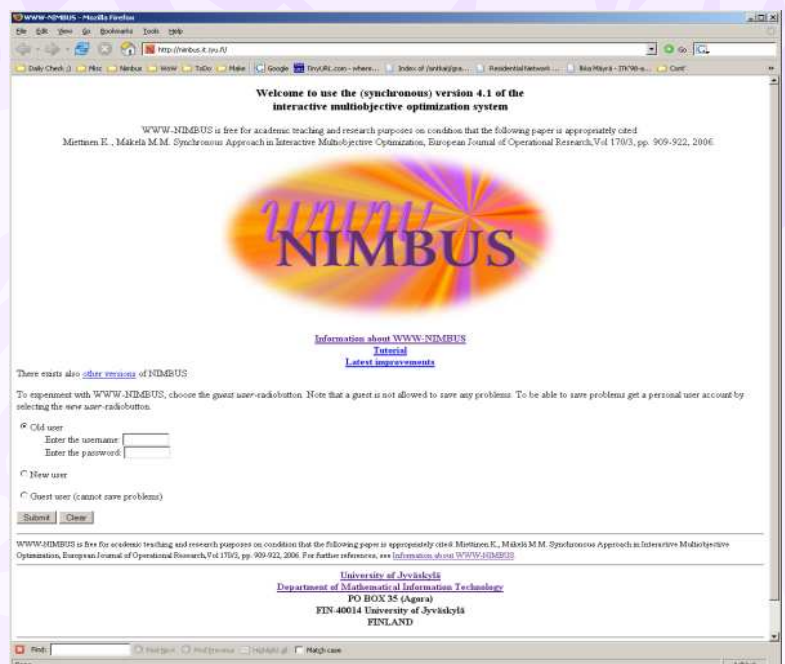
- interactive decision support and trade-off analysis
- balancing between several conflicting criteria
- analysing interrelationships between different objectives

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

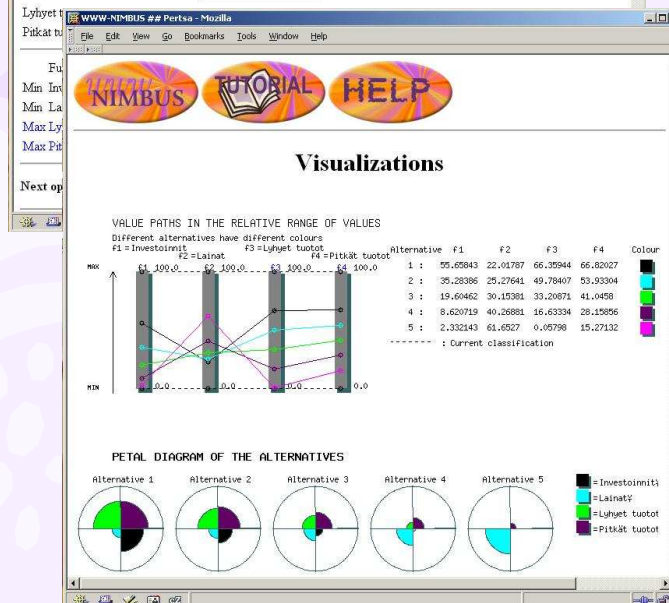
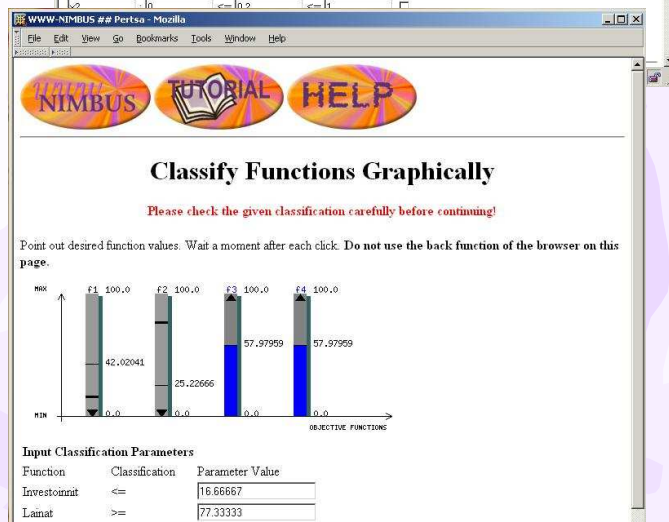
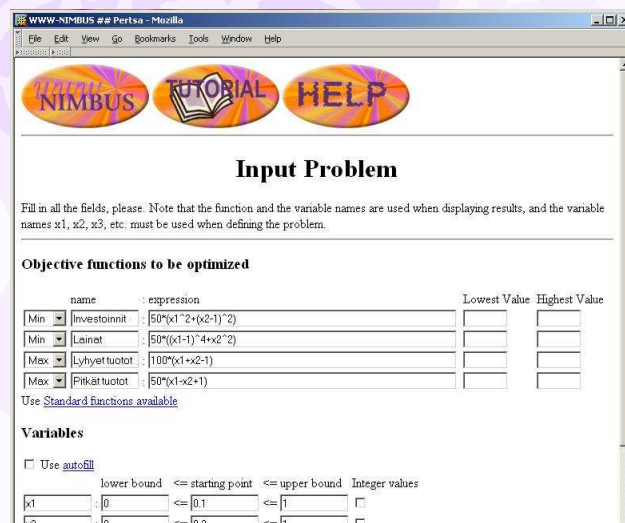
NIMBUS® is based on classification of objectives

- 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



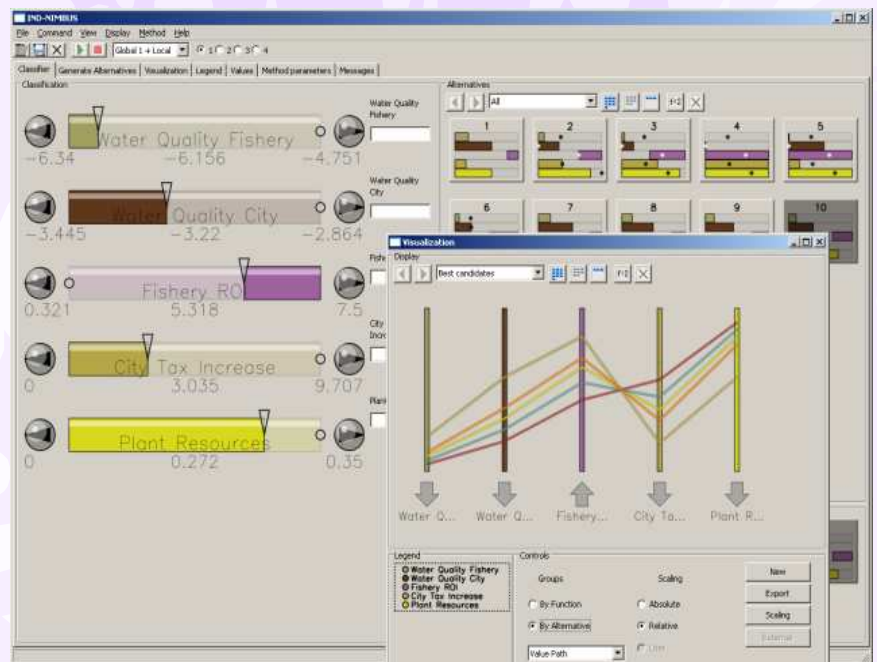
Features of WWW-NIMBUS®

- 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

1. Miettinen K., Nonlinear Multiobjective Optimization, Kluwer Academic Publishers, 1999.
2. Miettinen K. and Mäkelä M.M., Interactive Multiobjective Optimization System WWW-NIMBUS on the Internet, Computers & Operations Research 27, 709-723, 2000.
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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