Global Optimization Group

Vilnius
University

Research group activities

The research group develops algorithms for global and multi-objective optimization and their parallel versions for high-performance computers, applies optimization to solve practical problems in engineering, science, business and medicine.

Global optimization is the search for the minimum of a function when there may be many local minima and most of them are not useful for a decision maker, only the global minimum matters. Differently from local optimization where optimality conditions may be used to show that the optimization problem is solved, in global optimization local information about the solutions is not enough and different solution strategies must be used to search for the global minimum.

Global optimization problems are computationally expensive and difficult to solve. When computing power of usual computers is not enough to solve such problems, high-performance computers and clusters of computers are used. Therefore, parallel versions of optimization algorithms are developed and applied to solve large practical problems.

Proposal

- optimization of technological processes, engineering constructions, etc.;

- implementation of software for optimization, multidimensional data analysis and visualization;

- parallelization of algorithms.

Meet our team

Team members

Prof. Dr. **Julius Žilinskas**

Prof. Habil Dr. **Antanas Žilinskas**

Dr. **Algirdas Lančinskas**

Dr. **Gražina Gimbutienė**

Dr. **Remigijus Paulavičius**

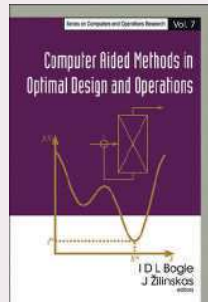**PhD students**

Albertas Gimbutas

Vaidas Jusevičius

Rima Kriauzienė

Natalija Puzanskaja

Linas Stripinis

Research outcomes

Recent papers published in Electrochimica Acta (IF 4.798), PLOS One (IF 2.806), Communications in Nonlinear Science and Numerical Simulation (IF 2.784), Computers & Operations Research (IF 2.6) and other top-ranked journals.

Various awards including the best paper award of Journal of Global Optimization, top papers recognition of Journal of Global Optimization and Optimization Letters.

Members of various boards and committees: managing board of EUROPT - EURO working group on continuous optimization; editorial boards of international journals; programme committees of international conferences; project evaluation panels including Horizon 2020, COST open call, European Science Foundation, Eurostars; award committees including the jury of the award for the best papers of European Journal of Operations Research.

Recent monographs published by Springer:

- **P. M. Pardalos, A. Žilinskas, J. Žilinskas** (2017) Non-Convex Multi-Objective Optimization. Springer, ISBN 978-3-319-61005-4.

- **R. Paulavičius, J. Žilinskas** (2014) Simplicial Global Optimization. Springer, ISBN 978-1-4614-9092-0.

- **G. Dzemyda, O. Kurasova, J. Žilinskas** (2013) Multidimensional Data Visualization: Methods and Applications. Springer, ISBN 978-1-4419-0235-1.

- **A. Zhigljavsky, A. Žilinskas** (2008) Stochastic Global Optimization. Springer, 978-0-387-74022-5.

Contacts

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