

The aim of the project is to propose new strategies of dynamic subpopulation number control (SDSNC) for evolutionary methods that use a number of coevolving subpopulations in order to increase their effectiveness in optimization tasks.

Evolutionary computation is a field concerning optimization methods. These methods are based on the observation of processes that take place in nature. The EC methods are effective in solving hard optimization problems, eg. NP-hard problems. NP-hard problems are typical for everyday life, for example: lesson timetable generation, production scheduling problem, finding the best route to reach the travel target, the management of routes for data transfer in computer networks, etc. Effective methods that allow to solve such problems may significantly influence the everyday life quality. Many EC methods use a population of solutions, that are modified in different ways during the method run. Some of the EC methods allow to use the coevolution – the use of many coevolving subpopulations. The number of coevolving subpopulations may be constant, or change during the method run. The preliminary research indicate, that the use of dynamic subpopulation number, may lead to promising results and the general increase of evolutionary methods. Therefore this project proposes the research on strategies of dynamic subpopulation number control.

The research that will be performed in the project:

The research will be performed to gain the new knowledge about the influence of coevolution on the evolutionary methods work.