

In the present work we deal with a branch of stochastic optimization algorithms, so called genetic algorithms. In the first chapter we can find description of a run of the genetic algorithm and the main operations which route searching of a feasible solution set, i.e. crossover and mutation. There is not absent a simple example, whereon reader can make sense of the presented operations. There is a short chapter devoted to theory of genetic algorithms which follows section describing various improvements of the basic algorithm, e.g. the Gray code. A real optimization problem is introduced in the third and also the last chapter. We have solved it using the theory of Markov decision processes for modeling a queuing system and by using genetic algorithms for finding optimum. We have also looked for optimum via a specialized algorithm. Both approaches are compared in the end of this chapter. All calculations have been implemented in the Fortran language.