Lehrgebiet Robotik und Grundlagen der Informatik
Prof. Dr. A. Ferrein

Introduction to AI — Summer Term 2019

Praktikum 2

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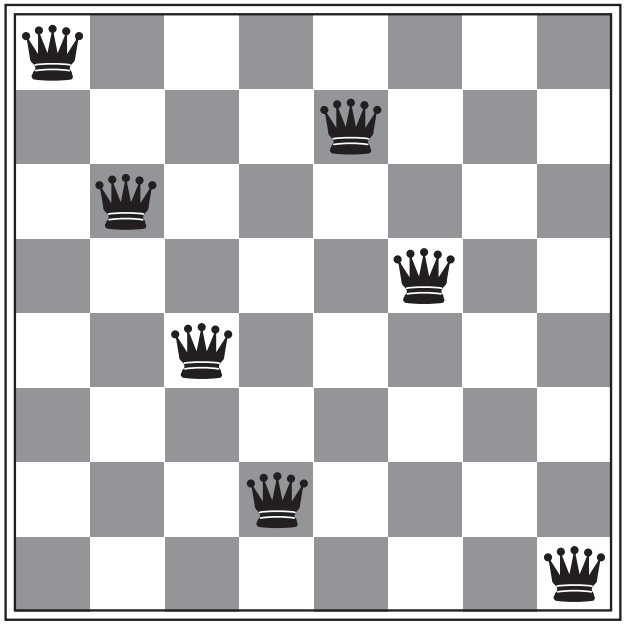
UNIVERSITY OF APPLIED SCIENCES

Problem 3: Problem definition of the 8 Queens problem

Develop a class for encoding the 8 Queens problem. It should encode the members: initial state, actions, transision model, heuristic etc as discussed in the lecture. The user should be able to choose the initial state or the transition model when instantiating the class. Also provide a visualisation (ASCII) of the board as well as for heuristic and the cost function.



Problem 4: Genetische Algorithmen

Solve the 8 Queens problem using Genetic Algorithms. Follow the method introduced in the lecture and make use of the fitness function which has been discussed. Start with a fixed random initial population. In each iteration of your algorithm, output the best individuum. Stop after 100 iterations.

Random number in the interval $[0, 1)$ could be generated with the *math.random* function. Check also if there are better ways to generate random numbers..

Problem 5: Backtracking Search

Solve the 8 Queens Problem by backtracking search.
Print all solutions to the screen.