Title: Artificial intelligence for real-time strategic games
Author: Ondřej Sýkora
Department: Department of Theoretical Computer Science and Mathematical Logic
Supervisor: Mgr. Cyril Brom
Supervisor's e-mail address: brom@ksvi.mff.cuni.cz

Abstract: Among the computer game players, real-time strategy games (RTS) are one of the most popular genres. Despite of this fact, there is a very low number of publications concerning this genre. In this thesis we study the problem of an action selection in the real-time strategy games using methods based on Markov decision processes. In the first chapters we introduce the genre of real-time strategy games from the game designer's perspective as well as from the view of an artificial intelligence researcher. We give an introduction to the Markov decision processes and to methods designed to solve them. We propose a solution of the problem of an action selection based on Markov decision problem solving using a discrete-event simulation of the real-time strategy game. We test the clarity of the proposed method and its properties.

Keywords: real-time strategy game, Markov decision process, Expected Outcome, bandit-based planning, discrete-event-simulation