

This thesis deals with the development of artificial intelligence for a simplified version of turn-based strategy game Advance Wars. Our focus is on comparing traditional "ad-hoc" game AI methods with methods that minimize the dependence on domain knowledge of the game. First part of the thesis contains analysis of the game, survey of selected game AI techniques and an overview of the implemented agents using decision trees, utility-based methods and neural networks. We present the results of our experiments with learning agent parameters and neural network weights using genetic algorithms and evolutionary strategies. We experimented with training agents against fixed opponents and with competitive coevolution.

In the second part we present the created software in detail. An efficient game simulator and a set of utility tools were implemented to support the AI development. A full-fledged graphical client that allows for both human and AI gameplay was also created.