The Hanabi game is currently very popular for the development of various Artificial Intelligences (AI). This popularity is mainly based on the fact that Hanabi is stochastic, possible to play in multiplayer, and mainly cooperative. In the literature, many approaches on how to develop AI for this game can be found. These approaches are mainly based on hand-written algorithms, Bayesian approaches, and deep Q learning.

In this thesis, we continue this research looking at the development of handwritten AI, handwritten AI using evolutionary algorithms, and AI based on deep Q-learning.

Using results from five handwritten Artificial Intelligences, we show how adding individual agent enhancements affects the final score. We further improve the best handwritten AI by optimising its parameters using an evolutionary algorithm. This resulting AI achieves the best results presented in the literature for a 5-player game for hand-written AI without the use of hat guessing strategies. The deep-Q learning-based AI was tested only on a significantly scaled-down and simplified version of Hanabi due to computational power and memory leak issues, but on this simplified version we successfully trained it to score above half of the possible points over 5000 games.