2048

The first version of my agent was an Alphabeta agent with score based heuristics. This agent was based on plain MinMax agent and performed slightly better then basic MinMax.

Then in the second bot I added heuristic such as the number of empty cells, prioritization of large tiles in the corners and potential merging heuristic which is counting of neighbor equal tiles horizontal + vertical and quantifies merge opportunities. Overall this agent was focused to leave more empty space and keep big tiles on corners which increased a score compared to score based AlphaBeta agent. Median score for this agent was ~15000+

In the third version of the agent based on existing heuristic + gradient heuristic which enforce a monotonic placement of large tiles toward the corner. Top left right corner has the biggest weight which make largest tiles stack in this corner and values gradually decrease outward. This gradient heuristic helps to reduce the chance of blocking the biggest tile by relatively small ones. And also, smoothness heuristic added to penalizes large score differences between neighboring tiles, encouraging boards that merge more easily. This model showed the best result, with median score ~29000