# RUMMIKUB

## Action Plan

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# 1 Introduction

This is my action plan to get a better view of what is expected of this internship. The goal of this internship is to create an AI that can play Rummikub with the use of Computer Vision.

This document starts with more information about the company where I'm doing this internship. Then you can find some more information about the goal and the different stages. Last, I'll document how I'll be doing my reporting.

# 2 Company

Arinti is a company mainly focused on Artificial Intelligence located in Mechelen, Belgium. They focus on solution-oriented applications. They are part of the Cronos Group and they are a Microsoft Partner.


# 3 Motive and background

The motive of this internship is to see what computer vision is capable of. The goal is to create an AI that can use computer vision to 'see' a game board while using an algorithm to play the game. Arinti is not focussed on computer vision so they would like to see what kind of solutions I can find. I think this would be a fun

project to work on. The algorithm is going to be the most difficult part of the project since Rummikub is a pretty complicated game with many possible game states.
During the first weeks I found the official Rummikub app and I will be focusing on using this app as a way to play the game while I will be using OpenCV as the main tool to use computer vision

# 4 Goal

The goal of this internship is to create use computer vision and an algorithm to work together and solve a problem. In this case the problem is a game of Rummikub. Computer vision will be used to 'see' the game board and be able to recognize the blocks and colors and feed this to the algorithm that will solve the game state with the given information. After solving this state, it will recommend a certain move to be made. In the end I would like the algorithm to be able to win games. The AI will however not be able to do this without help. It would recommend a certain move to be made and someone must act on the recommendation.

# 5 Milestones

I will be splitting this project into two big parts. Namely computer vision and the algorithm. I will try to finish the computer vision section the 16th of April. This includes setting up everything for the algorithm like converting computer vision output to something the algorithm can use, setting up the game environment and game rules. After this I will be focusing on the algorithm where I will start with adding one block at the time and build further on this concept.

# 6 Reporting

Every week there will be multiple stand-up meeting with my designated mentor. These stand-ups will be held on Monday, Wednesday and Friday. Arinti also expects documentation and a blog to be handed in towards the end of the internship. At the end of the internship, I will also be handing in all code used.
There will also be two meetings with the supervisor from Thomas More to follow up with progress. There also is a journal I will be adding to every week.