



Computer Vision - Rummikub

Reflection

Bachelor Applied Computer Science

Sander Backx

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Campus Geel, Kleinhoefstraat 4, BE-2440 Geel

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1 INTRODUCTION

In this document you can read about what I learned during this internship. I talk about the project itself and what I think went well and went bad for myself.

2 PERFORMED WORK

In this chapter I will discuss how the internship went.

2.1 What did I realize?

I developed a program that uses computer vision and a game algorithm to solve the game of Rummikub. When pressing the 'p' key on the keyboard the program will predict a possible next move. If the algorithm finds an answer it will give the player an instruction.

2.2 What can still be done?

There are still some moves the algorithm can not make. For instance moving blocks away from sections, leaving these sections invalid until you add new blocks to these invalid sections. The algorithm will always want to leave valid sections. This hinders the algorithm more in the later parts of the game.

What also could be nice is if the algorithm can move the blocks instead of the player needing to move the blocks. This way the player does not have to do anything other than to start the program and watch it play Rummikub.

3 PERSONAL REFLECTION

In this chapter I will focus more on what I learned during the internship.

3.1 What did I learn?

I learned that good research is invaluable. Doing good research at the start prevents you from reaching certain problems. I was thinking about using YOLO at the start but after some research I decided against using YOLO since it would have taken too much time. Thanks to these decision I was able to keep on track with my schedule.

Good communication is key. Being able to explain what you did is important. This makes meetings more useful since there are less misunderstandings and less questions.

Data is key. There was no Rummikub dataset so I had to get my own training data. This took a decent amount of time and when I needed to do tweaks I had to get some more data. This was also one of the reasons why I didn't go for a deep learning approach since such an approach needs way more data and I would have needed to spend even more time on data gathering.

3.2 Where did I have problems?

Since there is a pandemic going on we had to work from home. This in turn resulted in having problems to focus for extended periods of time. Starting the day was no issue but working the full 8 hours required effort. In the office you are surrounded with people working in the same field as yourself and such an environment makes it easier to keep at it. At home I spend my leisure in the same place as I would work. It is as easy as opening another browser or another program. Having a good schedule helped me with this problem.

Another problem I have is documenting everything I do. I scheduled time in for documentation at the end of the internship but it would have been better if I wrote documentation weekly or daily.

3.3 Where did I grow?

I mostly grew in analyzing the problem and splitting the problem up in multiple smaller steps. Planning these steps while also allowing enough room for problems to arise and sticking to this schedule.

A good schedule is very important. This not only helps you to keep track of the eventual goal, but it also helps to follow along with the project.

3.4 Mentor

Arinti was an amazing place to do my internship. I could always reach my mentor if I had any questions or requested feedback. The meetings we held a couple times a week

helped me with keeping on track and it was always nice to bounce some ideas back and forth. Even though it was a remote internship I still felt included in the company.