Timeline and project planning

Our project is organized in four main parts. We will start with an orientation phase to gain some knowledge about previously done work, focused mainly on Nikolay Savinovs’ paper REFCITE. We will then use our gathered insights to deploy the same environment for training and testing GITHUB of our agent within the vizdoom environment GITHUB and use the same evaluation methods of Reinforcement Learning baselines that were used in Nikolay REFCITE. We go for this setup to be later able to benchmark the performance of our agent against the results of the paper REFCITE.

Our vizdoom agent will be trained with the AC3 algorithm REFCITE and if there is time left also with PPO REFCITE.

15.03.18 Finishing orientation

23.04.18 Midterm presentation

28.05.18 Final Presentation, Project finished

To guarantee an efficient workflow we divide our team into two subgroups, where one team is entrusted with the infrastructural needs of the group, e.g. deploy necessary software on Leonhard. The rest of the group will be focused on the Reinforcement Learning algorithm training and evaluation.

We will devide our team in two subgroups to tackle the following tasks:

- Orientation: Understand previously done work by Nikolay Savinov our Tutor and deploy a similar setup, e.g. use the same Vizdoom version and adapt the training and evaluation methods of RL baselines used in his paper.

- Interface Vizdoom envioment

- Study Agent movement

- Deploy test program to Leonhard

- Understand and implement A3C (and eventually PPO)

- Implement rewards and training structure to explore efficiently the maze

- Training: we train our agent with the A3C algorithm

- Validation: We use the validation mazes to tune our parameters

- Testing: testing will be done with the seven provided mazes

- If there is time left we train and test our agent with PPO in addition

- We compare our results to previous results of Niklay Savinov

- Write the final report