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R&D Project Proposal

AI-based Blender Verification of Deep Neural Networks

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1 Introduction

- An introduction to the general topic you are covering.

  AI testing is not that feasible as classical software testing. Bringing up a real world example, a person with some physical sickness can be diagnosed easily as every symptom has a pattern. But a person facing mental issues cannot be diagnosed as easily, it has to be talked over. Similarly in a classical software, we know whats happening at every point of time. When you have a problem, you exactly know where it occurs and how to rectify them. But in a AI software, after a model is trained, we have no clue whats happening inside all those networks, it just happens. If there is a problem, we cant look into the network and find out whats not right.

  The goal of this RnD is to develop a wrapper over blender that enables us to verify if a Deep Neural Network is doing what it is supposed to do. Even if a model is trained on thousands of images, the knowledge it has is still so less when compared to the real world. There can be infinite possibilities and the model would definitely fail on some. In this RnD, we pick a meta-model, train it over a well established dataset, test the model by creating a wrapper that in turn generates blender environments by varying environmental settings.

- Why is it important?

1.1 Problem Statement

- What are you going to solve?

- How are you evaluating?

2 Related Work

- What have other people done?

- Why is it not sufficient?

2.1 Subsection 1

2.2 Subsection 2

3 Project Plan

3.1 Work Packages

The bare minimum will include the following packages:

WP1 Literature Search

WP2 Experiments

WP3 Project Report

Keep in mind that depending on your project, you will probably need to add work packages that are more suited to your projects.

3.2 Milestones

M1 Literature search

M2 Experimental setup

M3 Experimental Analysis

M4 Report submission

3.3 Project Schedule

Include a gantt chart here. It doesn't have to be detailed, but it should include the milestones you mentioned above. Make sure to include the writing of your report throughout the whole project, not just at the end.
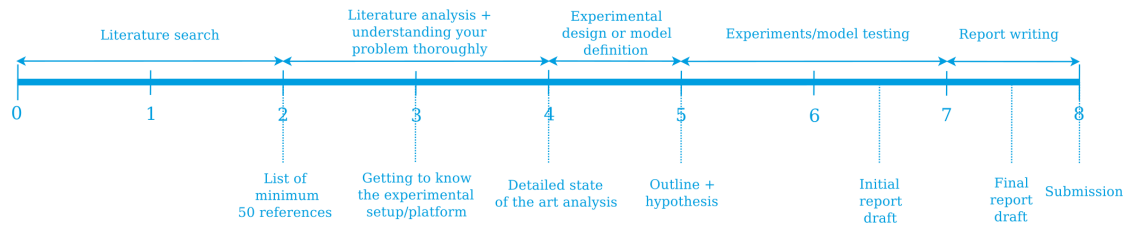
Figure 1: My figure caption

3.4   Deliverables

Minimum Viable

- Survey

- Analysis of state of the art

- Simple simulated use case

- Demo on youBot or Jenny

Expected

- Comparation of approaches in the robot

Desired

- Integration to scenario

References

[1] Author Name. Book title. *Lecture Notes in Autonomous System*, 1001:900–921, 2003. ISSN 0302-2345.