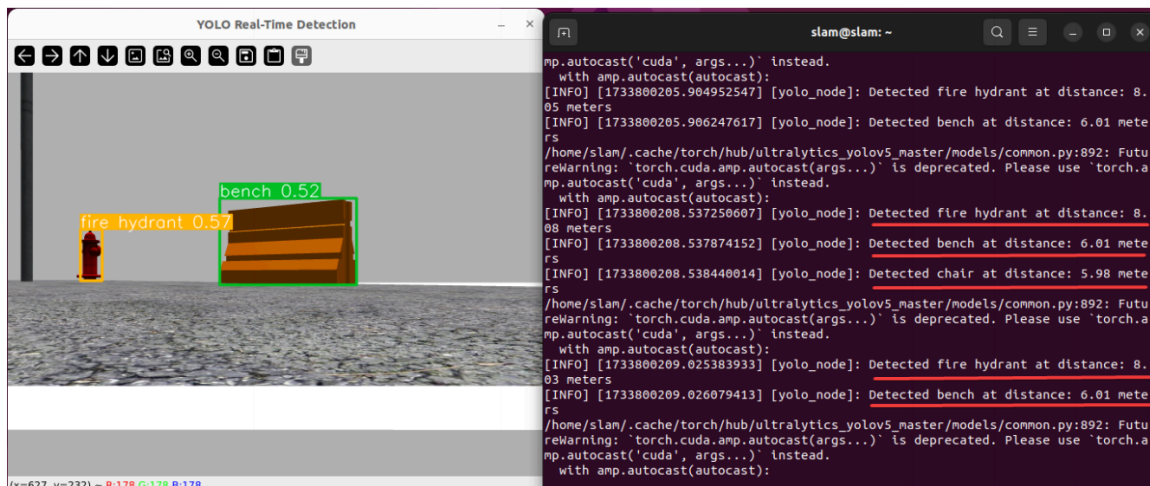


Note1

I've been testing the performance of Yolo detection by getting the camera theme and using it for object detection last semester. but when I run 30s later, the Python window tells me that there's not enough computing resources and I need to force a stop. I suspect this is because I'm running my Ubuntu VM in VMware and don't have enough resources to use GPU acceleration.

If we're testing on the computer in the Engineer lab 360 , we can use the original Ubuntu system, last week I tried to install ros2 and some plugins, but it reminded me that I don't have access to install because of user privileges. We can talk to the lab managers or we can use the computer in the first floor lab, there is original Ubuntu system computer, but not good GPU performance.



Note 2

I saw the implement in this paper [Autonomous Navigation of a Mobile Robot with a Monocular Camera using Deep Reinforcement Learning and Semantic Image Segmentation](#) (<https://ieeexplore.ieee.org/document/10417188>), they use Unity for simulation, and I saw some resource which is also can be used in conjunction with unity, for example unity have a plugin for ros2:

<https://unity.com/blog/engine-platform/advance-your-robot-autonomy-with-ros-2-and-unity>

Unity also support combine with Mujoco:

<https://mujoco.readthedocs.io/en/latest/unity.html>

[Mujoco and Unity Robotic Arm Simulator Project](#)

So, I think the Unity is a good platform that we can use.

For easy implementation , this paper([Deep Reinforcement Learning with Enhanced PPO for Safe Mobile Robot Navigation](#)) I understand all parts, because they imply the Easy-to-install robot named turtlebot burger which I have used before.

For building a RL environment: [Build a Custom Gymnasium Reinforcement Learning Environment & Train w Q-Learning & Stable Baselines3](#)

Problems

- I see you consider the special industries environment. If we build our own CNN model for training object detection, what kinds of object we put into dataset: human, box, iron frame,...
- the RL training need a lot of computational ability
 - How to train initially, (Generate some path data with the classical DWA (Dynamic Window Approach) algorithm, A* algorithm and so on
 - whether to train from some scratch or training based on existing models