

Lab 2

Learning to Control SPOT using Camera Inputs

Instructions

- Due date: **21 March 11:59pm**.
 - Copy the Colab [notebook](#) to your down Google drive and follow the instructions there.
 - Submit your work online to Canvas under Assignments/Lab 2 as a single zip archive `MatricNo-Lab2.zip`. See the Colab notebook for detailed submission instructions. Up to **10% penalty** may be applied, if the automatic grading script fails because you fail to follow the submission instructions.
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Report

1. Explain briefly how you train your model to achieve good performance, e.g., through data augmentation, regularization, or any other techniques. (*maximum 250 words*)
2. Consider the following experience, which is often encountered in practice. Alice's model demonstrates remarkable accuracy (>80%) during testing, and yet its navigation performance on a real robot drops significantly. For example, it may completely fail to complete a loop along the corridors in the COM1 building. One noticeable issue is the robot's gradual deviation from its intended path. Discuss potential reasons for this performance decrease and suggest possible solutions. (*maximum 500 words*)

Hint. You may google for *distributional shift* or *covariate shift* in behavior cloning imitation learning.

Grading Criteria

Your submission will be evaluated on a novel test set of images, according to

- prediction accuracy (70%)
- report (30%)
- extra credits (10%)

To receive the extra credits, your submitted model must be one of the top performers in terms of prediction accuracy. Your report must explain clearly how you train your model to achieve high performance, e.g., through data augmentation, regularization, or any other techniques.