

CS344 Exercise 12

Task 0: Survey on the Future of AI (Artificial Intelligence) and ML (Machine Learning)

Complete this ungraded and anonymous [survey on the future of AI and ML](#).

An epic deep learning competition! This Exercise has a bit of a different flavor than previous Exercises. It simulates an online machine learning competition. There are three problems. For each problem, you will be provided labeled data that you will use to build and train a deep learning model, and you will also be provided unlabeled testing data. Once you've trained and tuned your model, you should predict labels for the testing data. You will submit your predictions to the competition website:

<https://cs.wellesley.edu/~cs344/exercises/Exercise12/index.html>

At the end of the semester, the instructor will share the (anonymized) competition results with the class. Success in the competition will bring you fame and fortune... except for the fame part... and the fortune part. As long as you submit predictions, you will receive full credit for this Exercise. Your performance is irrelevant - although hopefully fun to see how effective your models are performing. For a given problem, you may make multiple submissions (in case you think you have your final predictions, but then you later decide to make a change and you want to submit your final, final predictions), but only your most recent submission will be used when the (anonymized) competition results are shared with the class, so there's no real benefit to making multiple submissions for the same problem.

You can download the data from the course website. You are not provided with any starter code or Notebook. The three problems are summarized on the next page. Good skill and good luck!

Task 1: Robot navigation

A robot is navigating around a room. It has 24 ultrasound sensors to determine where the walls are located around the robot. Based on its sensor readings, it must determine whether to move in one of four directions. Design a deep learning model to determine which direction the robot should move based on its sensor readings. Labeled data that you can use to train your model are available in the file **robot_navigation.csv**. Once your model is trained and tuned, you should make predictions for the unlabeled data in the file **robot_navigation_testing.csv**. Submit your predictions to the [competition website](#).

Task 2: Recycling

You are provided images of different types of recyclable material. Design a deep learning model to determine which type of recyclable material is in an image. Labeled data that you can use to train your model are available in the folder **Recycling**. Once your model is trained and tuned, you should make predictions for the unlabeled data in the folder **Recycling_testing**. Submit your predictions to the [competition website](#).

Task 3: Amazon product reviews

Given the review written about a product from Amazon, what is the sentiment of the review? Design a deep learning model to determine the sentiment of Amazon product reviews. Labeled data that you can use to train your model are available in the file **Amazon_products.txt**. Once your model is trained and tuned, you should make predictions for the unlabeled data in the file **Amazon_products_testing.txt**. Submit your predictions to the [competition website](#).

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In the *TIME* column, please estimate the time you spent on this exercise. Please try to be as accurate as possible; this information will help us to design future exercises.

PART	TIME
Exercise	