

04.01 Worksheet: Bias and Classifiers



Name

Class

Question 1

- a) Jane wants to build a classifier to tell whether an image of a soft drink is either a can or a bottle for recycling purposes. She takes pictures of all the drinks in her fridge and uses them to train her classifier.

Where could sampling bias occur in the scenario above?

What could Jane do to reduce the sampling bias?

- b) Josh wants to build a classifier to tell whether a bird sound in Victoria belongs to either a kookaburra or a cockatoo. He walks around his neighbourhood and records sounds of both types of birds and asks his friends who live in the area to do the same. He then uses all these sounds to train his classifier.

Where could sampling bias occur in the scenario above?

What could Josh do to reduce the sampling bias?

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- c) Jamie wants to build a classifier to tell whether a student at their school is sitting with a hand raised or with their hands lowered. She records images of herself sitting in front of the webcam in both poses. She then arranges for all her friends from the same year level across all genders to do the same. She then uses all these poses to train her classifier.

Where could sampling bias occur in the scenario above?

What could Jamie do to reduce the sampling bias?

- d) Jessica wants to build a classifier to predict whether the stock price of her shares will rise or fall tomorrow. She obtains historical data for the past year of how the stock has performed online from the Australian Stock Exchange and uses this data to train her classifier.

Where could sampling bias occur in the scenario above?

What could Jessica do to reduce the sampling bias?

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Question 2

Using Teachable Machines, train and build a sound classifier to classify 2 sounds:

- an “mmm hmmm” / assent sound ( [listen to an example here](#)), and
- an “uh uhuh” / dissent sound ( [listen to an example here](#))

How will you generate training data for the sounds to reduce sampling bias?

Watch the following videos for a walkthrough of how to use Teachable Machine to produce a classifier model for this task:

- Creating an Audio Project in Teachable Machine (10:09 mins):
 - [Youtube video](#)
- How to download and upload audio samples (1:39 mins):
 - [Youtube video](#)

Enter the URL of your completed classifier below:

How could a classifier like this be useful in the real world?

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Question 3

Using Teachable Machines, train and build a pose classifier to classify AFL umpire signals.

- What the following video to get some ideas for different umpire signals
 -  [watch video here](#)
- Select any **two AFL umpire signals** and build a pose classifier for them

How will you generate training data for the sounds to reduce sampling bias?

Watch the following videos for a walkthrough of how to use Teachable Machine to produce a classifier model for related to task:

- Creating a Pose Project in Teachable Machine (7:44 mins):
 - [Youtube video](#)
 - Please note that the poses used in the video (the hand raising ones) **not** the ones you need to submit for your pose classifier (which are the AFL umpire signal ones)

Enter the URL of your completed classifier below:

How could a classifier like this be useful in the real world?

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