Cardiff School of Computer Science and Informatics

Coursework Assessment Pro-forma

Module Code: CM2203
Module Title: Informatics
Lecturer: Dr Sylwia Polberg
Assessment Title: Informatics Portfolio 3
Assessment Number: 3 out of 3
Date Set: 30th of March 2022
Submission Date and Time: 13th of May at 9:30am
Return Date: 15th of June 2022

This assignment is worth **30%** of the total marks available for this module. If coursework is submitted late (and where there are no extenuating circumstances):

1. If the assessment is submitted no later than 24 hours after the deadline, the mark for the assessment will be capped at the minimum pass mark;
2. If the assessment is submitted more than 24 hours after the deadline, a mark of 0 will be given for the assessment.

Your submission must include the official Coursework Submission Cover sheet, which can be found here:

https://docs.cs.cf.ac.uk/downloads/coursework/Coversheet.pdf

Submission Instructions

Description		Type	Name
Report	**Compulsory**	One PDF (.pdf) file	[student number].pdf
Cover sheet	**Compulsory**	One PDF (.pdf) file	[student number]_coversheet.pdf

The files need to be submitted to appropriate sections in the Assessment→ Portfolio 3 area on Learning Central.

Any deviation from the submission instructions above (including the number and types of files submitted) will result in a mark of zero for the assessment or question part OR a reduction in marks for that assessment or question part.

Staff reserve the right to invite students to a meeting to discuss coursework submissions

Automatic anti-plagiarism and similarity checking tools can be used to process the submissions.

You can submit multiple times on Learning Central. ONLY files contained in the last attempt will be marked, so make sure that you upload all files in the last attempt.

Assignment

This is the last of the connected portfolios for this module, and as such the one offering the highest challenge.

In this assignment, we are going to use excerpts from the following datasets:

- AI Generated Faces from Generated.Photos
  https://generated.photos
- Turath-150K Image Database of Arab Heritage
  https://danikiyasseh.github.io/Turath/
- ANIMAL-10N Dataset
  https://dm.kaist.ac.kr/datasets/animal-10n/
  Song, H., Kim, M., and Lee, J., "SELFIE: Refurbishing Unclean Samples for Robust Deep Learning" In Proc. 36th Int'l Conf. on Machine Learning (ICML), Long Beach, California, June 2019

The assignment is worth 30 points in total and is compromised of the following tasks. The required files can be found in the .zip file accompanying this portfolio.

Additional clarifications concerning this portfolio may be posted on the discussion board on Learning Central, so please remember to check it.

Please stay within 600 words for this portfolio. The word count excludes references.

Task 1 [15] Am I a baddie?

Using your code from the previous portfolio, use the -u flag to produce a .csv with classified data (or use the backup classified data file accompanying this portfolio). Then run the am_i_a_baddie.py script and look at the results. The script has probably stated that your classifier is biased (in the unlikely event that this has not happened, please try the backup classified data).

Your task is to figure out why this has happened. Is the bias the fault of the classifier? The training data? Is it you? Is it the teacher? Write a short piece in which you pinpoint the reasons for the classifier misbehaving.

Task 2 [15] What do I do about it?

Independent inquiry time! You have pinpointed the reasons for the classifier misbehaving. But what if it happens again? What if in the future you are asked to build a piece of software based on specific requirements, and the approach turns out to be biased?

What kinds of formal approaches could you use as a preventative measure for this happening? Think about possible data ethics principles, responsible AI frameworks, data quality dimensions or assurance tools that you could use.

Pick one of these approaches and write a short text explaining how and why it could aid you in limiting biased behaviour of your software. Do not be discouraged if your choice is not bulletproof or if it does not address all possible ways biases arise; this is a big topic and your task is to focus on adding your piece of a puzzle to the solution.

Please remember to properly reference any materials you use here.

Learning Outcomes Assessed

1. Appraise the ethical implications and societal risks associated with data mining and data quality assurance

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Criteria for assessment

Credit will be awarded against the following criteria. The tasks are connected and increase in difficulty.

Task	Fail (0-39%)	3rd (40-49%)	2.2 (50-59%)	2.1 (60-69%)	1st (70-100%)
1	The analysis is very vague, inaccurate, or unreadable	The analysis is readable and some of the analysis about the reasons for biased behaviour is	The analysis is well and clearly written The explanation of reasons for biased behaviour is going into	The analysis is well and clearly written The explanation of reasons for biased behaviour	The analysis is well and clearly written, informative, succinct, and accurately pinpoints the reasons

		going into the right direction, but misses the main points	the right direction and makes a few accurate statements	mostly accurate	for biased behaviour
2	No formal approach was selected The justification is missing The analysis is very vague or unreadable No materials are properly referenced	An appropriate formal approach is chosen, but only some justification is present The analysis is readable Used resources are well referenced	An appropriate formal approach is chosen, and the justification is fair The analysis is well and clearly written Used resources are well referenced	An appropriate formal approach is chosen, and the justification is good but could use some improvement The analysis is well and clearly written Used resources are well referenced	An appropriate formal approach is chosen and convincingly justified The analysis is well and clearly written, informative, and succinct Used resources are well referenced

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Feedback and suggestion for future learning

Feedback on your coursework will address the above criteria. Feedback and marks will be returned on the 15th of June via Learning Central and/or email.

Feedback from this assignment will be useful for becoming an ethical computer scientist.