Coursework Assignment Brief

Assessment - Postgraduate

Academic Year 2021-22

Module Title:	Applied Machine Learning	
Module Code:	CMP7239	
Assessment Title:	Presentation: Practical Machine Learning	
Assessment Type:	CWRK	Weighting: 25 %
School:	School of Computing and Digital Technology	
Module Co-ordinator:	Taufiq Asyhari	
Hand in deadline date:	6th May 2022, 16:00	
Return of Feedback date and format	20 working days from date of submission (see Moodle for details).	
Re-assessment hand in deadline date:	TBC – Around July/August 2022	
Support available for students required to submit a re-assessment:	Timetabled revision sessions will be arranged for the teaching week preceding the hand-in date.	
NOTE:	At the first assessment attempt, the full range of marks is available. At the re-assessment attempt the mark is capped and the maximum mark that can be achieved is 50%.	
Assessment Summary	This is an individual assessment that requires students to implement practical machine learning tools using a software platform and evaluate the effectiveness of the tools to achieve the task's objectives. The students need to synthesise and communicate the findings using a recorded video presentation along with the presentation document.	

IMPORTANT STATEMENTS

Standard Postgraduate Regulations

Your studies will be governed by the BCU Academic Regulations on Assessment, Progression and Awards. Copies of regulations can be found at https://www.bcu.ac.uk/student-info/student-contract

For courses accredited by professional bodies such as the IET (Institution of Engineering and Technology) there are some derogations from the standard regulations and these are detailed in your Programme Handbook

Cheating and Plagiarism

Both cheating and plagiarism are totally unacceptable and the University maintains a strict policy against them. It is YOUR responsibility to be aware of this policy and to act accordingly. Please refer to the Academic Registry Guidance at https://icity.bcu.ac.uk/Academic-Services/Information-for-Students/Assessment/Avoiding-Allegations-of-Cheating

The basic principles are:

- Don't pass off anyone else's work as your own, including work from "essay banks". This is plagiarism and is viewed extremely seriously by the University.
- Don't submit a piece of work in whole or in part that has already been submitted for assessment elsewhere. This is called duplication and, like plagiarism, is viewed extremely seriously by the University.
- Always acknowledge all of the sources that you have used in your coursework assignment or project.
- If you are using the exact words of another person, always put them in quotation marks.
- Check that you know whether the coursework is to be produced individually or whether you can work with others.
- If you are doing group work, be sure about what you are supposed to do on your own.
- Never make up or falsify data to prove your point.
- Never allow others to copy your work.
- Never lend disks, memory sticks or copies of your coursework to any other student in the University; this may lead you being accused of collusion.

By submitting coursework, either physically or electronically, you are confirming that it is your own work (or, in the case of a group submission, that it is the result of joint work undertaken by members of the group that you represent) and that you have read and understand the University's guidance on plagiarism and cheating.

You should be aware that coursework may be submitted to an electronic detection system in order to help ascertain if any plagiarised material is present. You may check your own work prior to submission using Turnitin at the Formative Moodle Site. If you have queries about what constitutes plagiarism, please speak to your module tutor or the Centre for Academic Success.

Electronic Submission of Work

It is your responsibility to ensure that work submitted in electronic format can be opened on a faculty computer and to check that any electronic submissions have been successfully uploaded. If it cannot be opened it will not be marked. Any required file formats will be specified in the assignment brief and failure to comply with these submission requirements will result in work not being marked. You must retain a copy of all electronic work you have submitted and re-submit if requested.

Learning Outcomes to be Assessed:

4. Synthesise and communicate findings from an empirical investigation to diverse backgrounds

Assessment Details:

Title: Presentation – Practical Machine Learning

Theme: Networks, Cybersecurity, or Smart Systems (depending on the enrolled course)

Style: Recorded video presentation and presentation document

Rationale:
Guided by technological advances in computing, communication and electronics, Artificial Intelligence (AI) has gained momentum in progressing the development of intelligent systems since the past decade. Machine learning is at the core of the recent wide-spread AI deployment and adoption, enabling machine to be trained to perform automated intelligent tasks. Whilst computer science has been the primary area of machine learning development and applications, recent trends have shown machine learning applications in wider domains of networking, cybersecurity, and smart systems.

Hands-on knowledge and skills in applying machine learning concepts and building learning models are key to demonstrate effective intelligent data-driven solutions of domain-specific information processing challenges. This assessment aims to support the development of those relevant knowledge and skills, focusing on the practical machine learning task using a software tool.

Description:

- This is an individual assessment that requires you to submit a recorded video presentation and presentation document to explain findings from practical machine learning experiment and empirical evaluation.

- You can use any dataset that aligns with your course (networks, cybersecurity, or smart systems). Sources that might help you find suitable datasets:
    - https://www.kaggle.com/datasets
    - https://ieee-dataport.org/
    - https://dl.acm.org/artifacts/dataset
    - https://www.journals.elsevier.com/data-in-brief

- You have to develop machine learning model(s) in WEKA that combine feature engineering and classification techniques. The models have to be validated using standard performance metrics.

- The number of machine learning models to be developed depend on how performance benchmark is obtained.

    - **Option 1:** Benchmark performance metrics are obtained from a published research article. For this option, only one model is required and comparison is to be made between this model and the performance from the published article.
    - **Option 2:** Two models are developed where one of them is the benchmark.

Deliverables:

The submission deliverables shall include:

- Presentation slides
    - The slides shall incorporate the following components:
        - Problem statement and relevance of dataset selection
        - Aim and objectives of practical machine learning tasks
        - Structure of the machine learning model(s)
        - Empirical evaluation
        - Limitations of the experiment and future recommendations

    - A maximum of 10 slides are required for the presentation.

- Recorded video presentation
    - A 5-minute maximum recorded video presentation to present the slides

- Machine learning models: Saved .model file(s)

Additional information:

- Submission requirement: Upload separate files for the following items using the upload link in the assessment section of Moodle website
    - PDF/PPT presentation slides
    - Video presentation file
    - .model file(s)

- For advice on writing style, referencing and academic skills, please make use of the Centre for Academic Success: https://icity.bcu.ac.uk/celt/centre-for-academic-success

Workload:

This assessment is equivalent to 1000 words and a typical student would be expected to take 10 hours to pass this assessment.

Transferable skills:

- Data analysis
- Communication skills
- Academic presentation
- Planning and time-management
- Self-evaluation and critical analysis
- Applying numeracy: Mathematical calculations to support experimental findings
- IT skills – literature search and data presentation

Marking Criteria:

Table of Assessment Criteria and Associated Grading Criteria

Learning Objectives	**LO4 - Synthesise and communicate findings from an empirical investigation to diverse backgrounds**	
Assessment Criteria	1. Video Presentation	2. Presentation slides
Weighting:	**50%**	**50%**
Grading <u>Criteria</u> 0 – 24%	No video submitted, or major shortcomings in video clarity/relevance with practical machine learning task	No submission of slides or incoherent information submitted. No or little alignment with practical machine learning task
25 – 49%	Video submitted, but lacking clarity/relevance in the recorded presentation. Confused verbal explanation, showing a lack of understanding of machine learning concepts.	Slides submitted, but have inaccurate or lack of explanation in three or more of the five parts of the requirement below - Problem statement & relevance of dataset - Aim and objectives - Structure of the machine learning model(s) - Empirical evaluation - Limitations & recommendations
40 – 59%	Fair attempt on video delivery, containing some relevant information and some aspect lack of clarity. Adequate understanding of practical machine learning shown, although with several deficiencies	Slides contains adequate information in at least three of the five parts of the requirement.
60 – 69%	Good video delivery reflecting on the major features of the task; straightforward to follow; confident and interesting	Slides contains a good level of information and familiarity with the concepts across all the five parts of the requirement.
70 – 79%	Well-planned, coherent video presentation expressed with confidence and interest, showing excellent understanding of the concepts linked with aims/objectives as well as findings and critical assessment.	Succinct and informative slides with effective uses of texts and visual graphics, completely covering all the five parts of the requirement as well as appreciation of wider issues associated with the task.
80 – 89%	Fluently delivered, very well-planned video presentation expressed with an excellent level of confidence and interest, appropriate to the audience, reflecting on the aims/objectives as well as findings and critical assessment.	Professional, clear, succinct and informative slides with professional uses of texts and visual graphics. The material presented contains potential novelty with respect to published benchmark results.
90 – 100%	In addition to the criteria in the 80-89 bracket. Exceptionally well-delivered video presentation. There was a demonstration of a mastery understanding of machine learning concepts and high level of professional presentation showing originality of thought.	In addition to the criteria in the 80-89 bracket. Exceptionally well-structured presentation slides with strong novelty with respect to published benchmark results. There was a demonstration of a mastery understanding of machine learning concepts and insightful level of critical analysis showing originality of thought.

Submission Details:

Format: *Upload separate files for the following items using the upload link in the assessment section of Moodle website*

- *PDF/PPT presentation slides*
- *Video presentation file*
- *.model file(s)*

Regulations:

- The minimum pass mark for a module is 50%
- Re-sit marks are capped at 50%

Full academic regulations are available for download using the link provided above in the IMPORTANT STATEMENTS section

Late Penalties

If you submit an assessment late at the first attempt then you will be subject to one of the following penalties:

- if the submission is made **between 1 and 24 hours** after the published deadline the original mark awarded will be reduced by **5%**. For example, a mark of 60% will be reduced by 3% so that the mark that the student will receive is 57%. ;
- if the submission is made between **24 hours** and **one week (5 working days)** after the published deadline the original mark awarded will be reduced by 10%. For example, a mark of 60% will be reduced by 6% so that the mark the student will receive is 54%.
- **if the submission is made after 5 days following the deadline, your work will be deemed as a fail and returned to you unmarked.**

The reduction in the mark will not be applied in the following two cases:

- the mark is below the pass mark for the assessment. In this case the mark achieved by the student will stand
- where a deduction will reduce the mark from a pass to a fail. In this case the mark awarded will be the threshold (i.e. 50%)

Please note:

- **If you submit a re-assessment late then it will be deemed as a fail and returned to you unmarked.**

Feedback:

Formative verbal feedback will be provided in the weekly sessions.

Marks and Feedback on your work will normally be provided within 20 working days of its submission deadline via Moodle.

Written feedback will be provided via the submission point on Moodle website.

Where to get help:

Students can get additional support from the library for searching for information and finding academic sources. See their iCity page for more information: http://libanswers.bcu.ac.uk/

The Centre for Academic Success offers 1:1 advice and feedback on academic writing, referencing, study skills and maths/statistics/computing. See their iCity page for more information: https://icity.bcu.ac.uk/celt/centre-for-academic-success

Additional assignment advice can be found here: https://libguides.bcu.ac.uk/

Fit to Submit:

Are you ready to submit your assignment – review this assignment brief and consider whether you have met the criteria. Use any checklists provided to ensure that you have done everything needed.

Assignment Checklist

Run through this simple tick list before submitting your work!

Report

Well prepared materials make your work look more professional and easy to understand.

Item	Action	Done?
1		
2		
3		
4		
5		
6		
7		
8		

Referencing and Originality

Your work will be subjected to checks to ensure it is not derivative of other works. Works found to be derivative may leave you subject to penalties, including in extreme cases, expulsion from the University.

Item	Action	Done?
1		
2		
3		
4		
5		

Content

Is your work complete? Have you included all the required elements?

Item	Action	Done?
1		
2		
3		
4		

5		
6		