

# 20/21 CSCM38 Advanced Topics: Artificial Intelligence and Cyber Security

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## Coursework 1

Complete by 10th Nov 2020

### Literature Review and Project Proposal [50 marks in total]

A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, allowing you to identify relevant theories, methods, and gaps in the existing research. Conducting a literature review involves collecting, evaluating and analysing publications (such as books and journal articles) that relate to your research question. A good literature review does not just summarise sources. It analyses, synthesises, and critically evaluates to give a clear picture of the state of knowledge on the subject.<sup>1</sup> Based on the study of relevant literatures, a small project proposal should be produced which is a concise and coherent summary of your proposed project within this course. It sets out the central issues or questions that you intend to address.

You are required to write a maximum **8-pages** report including literature review and project proposal in the research fields of deep learning and its applications in cyber security. The report is expected to demonstrate your understanding of the selected topics in depth and your ability of critical thinking. You can use either the reading materials that provided by the lecturer which can be downloaded from *Canvas* or other academic publications from professional journals, research conferences and pre-print publishers (*i.e. arXiv.org*). Your report should contain the following sections and contents:

1. Introduction [**10 marks**]: Provide a short overview of the problem that you are going to address in the project. This should cover the background and significance of the problem, which answers the following questions: *where does the problem come from, why is the problem important, and what can we benefit from solving it.*
2. Related Works [**20 marks**]: Study 3-5 relevant academic publications in the field to identify feasible approaches to address the proposed problem. For each research work, describe the problem definition and the proposed method, summarise the experimental results and key findings, analyse its contributions and significances, discuss its advantages and the drawbacks that can be improved in the future.

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<sup>1</sup><https://www.scribbr.co.uk/thesis-dissertation/literature-review/>

- Summarise and Synthesise: Give an overview of the main points of each source and combine them into a coherent whole.
- Analyse and Interpret: Do not just paraphrase other researchers – add your own interpretations, discussing the significance of findings in relation to the literature as a whole.
- Critically Evaluate: Mention the strengths and weaknesses of your sources.

This section may contain multiple sub-sections.

3. Project Plan [**5 marks**]: You should provide the process of establishing the scope and defining the objectives and steps to achieve them.
4. References [**5 marks**]: References should be included and cited where appropriate. **The reference is not counted towards the page limit.**
5. Presentation [**10 marks**]: Prepare 3-5 slides to introduce your project. A **5-minutes** video presentation should be recorded and submitted to Canvas together with your slides. You may use *Microsoft PowerPoint* for slide and *Zoom* for video recording.

**Page Limit:** The report should be **no more than 8 pages excluding references**. Font size should be **no smaller than size 10**, and the text area is approximately 9.5x6 inches. You may use images but do so with care; do not use images to fill up the pages. You may use an additional cover sheet, which has your name and student number. **Reports that exceed the specified page limit will result in penalties: 5 marks deduction for every over-length page.**

## Submission

Note that on the Canvas there are separated report and presentation submission entrances. The report must be submitted in **PDF** format. Submissions and feedback will be done via Canvas system. Zip your slides and video presentation into one compressed file using the following naming convention for submission:

- [Student Number]-[Last Name][First Initial]-[Coursework][Number].zip
- For example: *123456-DengJ-Presentation.zip*

## Policy

- To be completed by students working individually. **Plagiarism will not be tolerated.**
- Feedback: individual feedback is given on Canvas within two weeks of the deadline.
- Learning outcome: The tasks in this coursework are based on both your practical work in the lab sessions and your understanding of the theories and methods of data mining. Thus, through this coursework, you are expected to demonstrate both practical skills and theoretical knowledge that you have learned in this module. You will also formally present your understandings through technical writing. It is an opportunity to apply analytical and critical thinking, as well as practical implementation.

- Unfair practice: This work is to be attempted individually. You may get help from your lecturer, academic tutor and lab tutor, but you may not collaborate with your peers. Copy and paste from the Internet is not allowed. Using external code without proper referencing is also considered as breaching academic integrity.
- Submission deadline: The report need to be submitted electronically to Canvas by the deadline. In addition, you have a maximum 7-days late-submission allowance that can be used for both two courseworks. For example, the deadline of coursework 1 is 10<sup>th</sup> Nov, but you submit your work on 13<sup>th</sup> Nov, which means you have used 3-days late-submission allowance. Therefore, you only have 4-days late-submission allowances for coursework 2.