MATH4267: Deep Learning and Artificial Intelligence Assignment Rubric

2023-24

1 Part 1

Marks to be assigned based on where most descriptors are accurate.

1.1 Question 1

< 50: Failure to understand paper. Answer largely derived from abstract only. Minimal mathematical specificity. Description of specific examples in paper only, rather than general discussion. Unrealistic or trivial future research ideas.

50-60: Understanding of general idea of paper and general setting. Little precision or specificity. Understanding of setting, but possibly not exactly what the paper adds. Description of general idea, but with reference to specific examples in paper. Simple but plausible future research ideas.

60-70: Reasonable understanding of paper, and good understanding of general setting. Correct identification of what the paper adds and why this is useful. Some discussion of parts of paper outside of main theorem or main idea. Reference to general potential of paper as well as specific examples. Understanding at a level where some interesting future research avenues could be proposed.

70+: Clear understanding of setting of paper and clear description of what paper adds, ideally identified precisely using mathematical notation. Understanding of areas of paper outside main thrust. Identification of examples in paper. Identification of pertinent further potential research avenues.

1.2 Question 2

< 50: Unrealistic example indicating lack of understanding of paper setting. Use of example very similar to those already identified in paper.

50-60: Generic setting, without understanding of how the method in the paper improves the ability to do the task. Reference only to main thrust of paper.

60-70: Good example, reasonably specific to problem identified in paper. Reference to parts of manuscript other than main theorem/idea. Indication of specifically what could be improved by this paper.

70+: Very good example specific to area in paper. Clear description of what could improve, possibly including precise mathematical quantification. Consideration given to several results in paper, not just main thrust, and specific reference to examples in paper for comparison.

1.3 Question 3

< 50: just a repetition of theorem statement, no real relation to rest of paper, inaccuracies in mathematics

50-60: simple or trivial use case, indicating understanding of the rough idea of the theorem. Understanding mostly in isolation without reference to wider paper. Mathematics mostly correct.

60-70: reasonable use case and appreciation of what relevant assumptions and definitions mean. Some understanding of why theorem is important to overall message of paper. Minor errors in mathematics only.

70+: realistic non-trivial use case, exposition of all assumptions and definition and what they mean, evidence of good understanding of theorem statement and implications, related to wider paper

1.4 Question 4

In these answers, 'statement' refers to the theorem/equation/table/figure in question.

< 50: repeating statements from the paper without explanation, little understanding of what is being said or relevance to wider paper,

50-60: identification of what the relevant statement means, possibly without relevance to the wider message. Errors or misunderstandings in interpretation. Little reference to other parts of paper. Parts of statement (elements of figure, columns of table, assumptions etc) unexplained or incorrect.

60-70: appreciation of what the statement means, and some understanding of why it matters to overall message. Relation to other parts of paper and other statements. Good description of why relevant parts (elements of figure, columns of table, assumptions). Some use of examples. Minor errors in mathematics only.

70+: Strong understanding of what is being said and relation to overall message of paper and potential use to a reader. Clear description of relations between statement and other parts of paper. Use of pertinent examples.

2 Part 2

2.1 Submission of R object

Grades to be determined based on generalisation error; bounds TBC, but will correspond to:

< 50: Predictive performance indistinguishable from random

50-60: Predictive performance better than random, but consistent with a fairly simple predictive model.

60-70: Predictive performance consistent with a more complex and stronger predictive model.

70+: Predictive performance consistent with an excellent predictive model.

2.2 Report

Marks to be assigned based on where most descriptors are accurate.

< 50: Cannot follow what was done; very simplistic analysis;

50-60: Some attempt to use reasonable methods; description can be followed.

60-70: Competent use of methods, with evidence of insight into why some things may work better than others; comparison of several ideas; description clear.

70+: Very good use of methods, all decisions well-justified; evidence of deep understanding of methods, description rigorous and clear.