

MSc – Fundamentals of Artificial Intelligence Second Assessed Practical

Essay

You are asked to write an essay based on a discussion of the possibility of the implementation of machine understanding.

If you have not written an essay recently, you should first read the general advice on how to write essays on the course web page. Your essay should be roughly 2500 words long; this is not a long essay, so you should aim to express yourself succinctly.

The main reading for the essay is the article by Roger Penrose “Setting the Scene: the Claim and the Issues”, from *The Simulation of Human Intelligence*, Broadbent (ed), Blackwell, 1993. Copies are available from the ITO. The section “On the non-computability of Mathematical Thinking”, up to the middle of p 15, is standard material and can be omitted from reading, by just reading the summary starting “At this point it might be advisable to go over . . .”

Penrose’s views are controversial, and there are many objections to his ideas that can be easily found, for example there is a collection of responses at

psyche.csse.monash.edu.au/v2/psyche-2-23-penrose.html

1. Penrose distinguishes four possible viewpoints on the relationship between computation and conscious awareness. Explain why there is a problem about this relationship, and summarise the four positions that Penrose gives.
2. Take two of the seven possible explanations of human mathematical behaviour given by Penrose. For each, describe the proposed explanation, and say whether you are convinced by Penrose’s own arguments for or against that position, being careful to justify your answer.
3. You should give your own opinion on Penrose’s overall argument in the article. Credit will be given for an evaluation backed up with a reasoned argument.

This assignment should normally take not more than eight hours to complete.

Assessment

- An essay that more or less correctly explains the problem and positions in the first question and answers the second question in some sensible way will get a C grade.
- An essay that in addition clearly tackles the overall argument will get a B grade.
- An essay that in addition brings in some outside reading and/or presents a more original argued position of its own will get an A grade.

Submission

You should identify your submission by providing at the start your **examination number** (rather than name or matriculation number).

Submit your answers as a text or PDF file on the Informatics system. Use the command

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submit msc fai 2 <yourFile>
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The deadline for submissions is

16:00 on Monday 17th November