

# COMP815 Nature Inspired Computing

## Assignment Part 2: Ant Colony Optimization

(Worth 15% of the total marks for COMP815)

### Task

The aim is to solve the travelling salesman problem (TSP) that you have been given in Part 1 of the assignment using Ant Colony Optimization. Provide experimental evidence to support your answers to the following questions.

- (1) What are the effects of the heuristic strength on the quality of solutions obtained from ACO? Give some plausible reasons to support your observations.
- (2) What are the effects of the pheromone evaporation rate on the quality of the solutions obtained from ACO? Give some plausible reasons to support your observations.
- (3) Compare the best results you have obtained using GA and ACO. Comment on your findings.

### Submission Requirements

Write **a report as a Jupyter notebook** with relevant code cells that you have used to generate the results. This report should have:

- (1) Your answers to the above questions.
- (2) The experiments and results you have obtained to support your answers.
- (3) A conclusion.

The text in your notebook should clearly describe your process and results. Appropriate headings should be used to make your notebook readable by the marker. Also, make sure that you are using the instance of TSP specific to yourself.

**Zip (do not use rar or other archive formats) your Jupyter notebook with any data files that are needed for your code to work. Submit this file to Canvas.**

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