CO3091 — Computational Intelligence and Software Engineering

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Many real work problems are challenging and time-consuming to be solved by humans.
Example of Problem

- **Traveling Salesman Problem:**
  - A salesman must travel passing through $N$ cities.
  - Depending on the route the salesman takes, he/she will need to travel longer / shorter distances.

Problem: **find** a route that **minimises** traveling distance.
Example of Problem

• Software energy optimisation
  • Mobile app that uses too much battery = ?
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• Software energy optimisation
  • Mobile app that uses too much battery = ?
  • The colours used in the GUI of OLED screen mobiles influence energy consumption.

Problem: create a GUI colour scheme that minimises energy consumption.
Why not using computers to give us solutions automatically?
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We can! So long as the algorithms are intelligent :-(
Computational Intelligence

Artificial intelligence algorithms designed to find good solutions to problems (incl. software engineering problems) in a reasonable amount of time.
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• **Assessment**
  • Two courseworks (40%)
  • One exam (60%)

• **Small programming component** in the coursework.

• **Maths**: there will be some formulas, but I will go through them slowly to help you practice and get used to them.

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