

# Knowledge Representation Workshop 1

CITS3005

July 31, 2023

## Limits and Capabilities of AI Assistants

1. AI assistants, large language models, computational knowledge engines, and computational search all represent elements of knowledge representation, retrieval and deduction.

In this workshop we will discuss the mechanisms behind different software AI/knowledge assistants, and consider:

- (a) tasks that such assistants *are* competent;
- (b) tasks that such assistants *appear* competent;
- (c) task that such assistant *are not* competent.

Prepare for the workshop by completing the following tasks:

- (a) Select a non-trivial task that requires some degree of knowledge, cleverness, or expertise. Examples might be planning a route, debugging a program, composing text, or ranking art works.
  - (b) Describe the problem as clearly as possible, and consider what metrics might be used to assess the task.
  - (c) Investigate available technologies (AI assistants/computational knowledge engines etc) that could autonomously, or semi-autonomously complete the task, and select the one you think most appropriate (or interesting).
  - (d) Experiment with the technology to find the best practice in applying the technology to the task.
  - (e) For which aspects of the task does the technology perform well? Describe these as clearly as possible.
  - (f) For which aspects of the task does the technology perform poorly? Describe these as clearly as possible.
  - (g) Would you say the current technology is adequate for the given task? If not, what challenges must be overcome in order to automate this task?
2. There is a good introductory tutorial, written for Gnu-Prolog. Set up a basic development environment, and aim to work through the first ten pages of the tutorial this week.