COMP4418

Knowledge Representation and Reasoning

Lecturers:

- Maurice Pagnucco (K17-104A; morri@cse.unsw.edu.au)

- David Rajaratnam (daver@cse.unsw.edu.au)

- Abdallah Saffidine (abdallahs@cse.unsw.edu.au)

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Aim: Introduce

- Techniques used in KR to represent knowledge

- Associated methods of automated reasoning

Units of Credit: 6

Prerequisites: COMP3411 or COMP4415 plus 6 Units of Credit in COMP3###

Course in AI + some familiarity with

- LISP/PROLOG

- First-order logic

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Marking: 3 assignments of equal value (15%) and final exam work 55%.

> No project but some programming

Text: References provided in class

Format:

- Lectures: Wednesdays 3-6pm
    - Room G16 TETB
- Consultations: as required

Course Structure:

- 4 weeks: Introduction to KRR

- 4 weeks: Non-monotonic reasoning, reasoning about knowledge and reasoning about action

- 4 weeks: Planning and decision making

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Topics for KRR Part 1: Introduction:

- Introduction
- First-order logic
- Expressing knowledge
- Full Clausal logic
- Horn Clause logic
- Procedural representation
- Nonmonotonic reasoning and defaults

Topics for KRR Part 1: Potential Additional Topics:

- Production systems
- Description logics
- Frames
- Inheritance networks
- Probabilities
- Defaults
- Abductive explanation
- Action
- Planning
- Expresiveness/tractability
- Belief Change
- Cognitive Robotics