

COMP3411/9814 21T1

Revision and Exam Hints

Know your tutorial exercises!

- The tutorial exercises give you the best practice for what questions to expect in the exam, so ...
- Go over your tutorials and make sure you understand the solutions!

Agents

- What are the different types of agents and how do they differ?
- When are different types of agents applicable?

Prolog Programming

- Given a program, what is the correct output?
- Given an incomplete program, what additional code is needed to get the desired output?

Search

- What are the different types of search algorithms?
- What are their properties?
 - Order of search
 - Optimality
 - Complexity
- Can you demonstrate different search algorithms on a simple example?

Constraint Satisfaction

- What are the different CSP strategies?
e.g forward checking, arc consistency
- Can you apply them on a small example?

Logic

- Can you write down the truth table for a formula in propositional logic?
- Do you understand what a model is and can you find it for a given formula?
- Can you translate a statement in English into logic and *vice versa*?
- Do you know how to derive a canonical form?
- Can you apply resolution theorem proving to a simple problem?

Planning

- Do you understand how to represent actions (e.g. STRIPS)
- Can you apply a planning algorithm (e.g. forward, backward chaining) to generate a plan?

Reinforcement Learning

- Can you explain how Q-learning works?
- Can you calculate value functions and Q values?

Decision Trees

- Can you calculate the entropy and information gain to work out how to split a node in a decision tree?
- Can you calculate errors to decide how to prune a decision tree?

Neural Networks

- Given a network and an activation function, can you propagate value through a network to get an output (i.e. forward pass)?
- Can you apply the perceptron training rule?

Inductive Logic Programming

- Do you understand inverse substitutions?
- Can you find the least general generalisation of two clauses?
- Can you apply DUCE operators?

Grammars

- Can you work out if a sentence is recognised by a grammar or can the grammar generate some sentences?
- Can you apply top-down, bottom-up and chart parsers?
- Can you write a simple Definite Clause Grammar?