ARTIFICIAL INTELLIGENCE

REASONING

GOAL FOR TODAY

- Quality of the work to be submitted
- How will this online course look like?
- Knowledge representation
- Reasoning
- Propositional logic

COURSE DESCRIPTION

One-hour synchronous communication, readings, discussions, and evaluation

Lesson 1. Introduction

Lesson 2. Knowledge representation; Reasoning; Propositional Logic

Lesson 3. Predicate Logic

Lessons 4-5 Search Strategies; Prolog (I and II)

Lesson 6. Expert Systems

Lesson 7. Natural Language Processing

Lesson 8-9. Learning; Machine Learning; Python; Deep Learning (I and II)

Lesson 10. Catch-up; Presentations

Tentative ! Done by June 19nd

- Regular readings and discussions in Slack (10%)
  - Individual
- Homeworks (30%)
  - Course notes
  - Exercises – Propositional logic / Predicate logic / Prolog / Grammars
  - To be provided in a shareable file
  - Individual
- (Directed) Labs and project (Python) (40%)
  - Deep learning example
    - To be explained in a 2-minute video
    - Individual
  - Project
    - To be presented (5 minutes per team)
    - Team of 2-3 students
- Exam (20%)
  - Quiz (only)

LESSON 11 – REASONING

WHAT IS REASONING?

- Reasoning is the ability to draw new conclusions from knowledge we have or infer something new about a domain of interest
- Think about the reasoning you use everyday
  - What to do to take the train? Induction – Generalize from cases seen to cases unseen
  - How to react to an annoying friend? Abduction – Reasoning back to events or situations
  - What to do if you have a flat tire? Deduction – Logic reasoning (if then)
- We need to be able to reason with uncertainty as knowledge is often incomplete