Artificial Intelligence

Lecture 0

Dr. Sherif Saad

Tuesday May 2, 2017

Course Information

Course Instructor: Dr. Sherif Saad

Units: 1.5 Hours: 3 hours lecture [May-July] 2017

Location: Cornett Building B112

Time: Tuesday [5:00 - 5:50 PM], Wednesday & Friday [9:30 - 10:20 AM]

Markers:

- Ms. Hadeer Ahmed, meresger.hs@gmail.com
- Mr. Skahuddin Jojhio sjokhio@uvic.ca
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Course Assessment

- Assignments: 45 %
  - Assignment 01 : 15% due date is May 26, 2017
  - Assignment 02 : 15% due date is June 23, 2017
  - Assignment 03 : 15% due date is July 14, 2017
  - Assignments are group based
- Research Paper | Project : 30%
  - 5% Proposal - June 09, 2017
  - 5% Progress Report - July 07, 2017
  - 5% Presentation & Demo 21 - 28, July 2017
  - 15% Final submission (Report | Code) August 10, 2017
- Final Quiz: 25%
- Bonus: 10% (in class participation and outstanding performance)

What do you need for this course?

- Course Syllabus and Outlines
- Basic Math Skills
- Programming Skills
- Work within a group
- 8-12 hours a week
- Textbook (optional)

Technical Requirements

- Programming Language: Python, Java, C++
- Virtual Machine: Ubuntu 16.04
- IDE: PyCharm, IntelliJ, CLion, Eclipse
- Version Control: Github or Bitbucket
- Word Editor: MS Word, Latex, Google Doc, LibreOffice

Form Groups and Register in the Course Mailing List

Create your group of 3 or 5, students and pick a catchy name for your group

To register in the course mailing list, send email to:

ceng420@fastmail.com

To send private email to course instructor or markers

ceng420_priv@fastmail.com

Course Instructor in Nutshell

- Academics:
  - B.Sc, M.Sc in Computer Science
  - Ph.D in Computer Engineering
  - Research: Cyber Security, Machine Learning, Computational Intelligence, Software Engineering
- Industry (10+):
  - Director of Engineering
  - Chief Software Architect
  - Software Security Architect
  - Application Security Engineer Penetration Tester
  - Software Engineer

Artificial Intelligence: Course Outlines

1. Number Theory
2. Client-Server Architecture
3. Virtualization
4. NoSQL Data Modeling
5. Unit Testing
6. Dynamic Programming
7. K-Partite Graph and Its Applications
8. Space and Time Complexity Analysis
9. Computer Architecture Design Principles
10. Overlay Networks

AGREE with the Previous Course Outlines, please

What topics should be covered in an Artificial Intelligence Course?

Learning Objectives

- Introduce the undergraduate and graduate students of ECE to the main principles, and fundamental concepts of artificial intelligence
- Expose the students to the different branches of artificial intelligence and their practical applications.
- Discuss the core concepts and algorithms of advanced AI, including informal, search, similarity and distance metrics, computational intelligence, machine learning, recommendation systems, knowledge representation and deep learning.

Learning Outcomes

- Understand different branches of AI and the overlap between them.
- For a given problem you can analyze and formalize the problem, select the appropriate AI method(s) to solve this problem
- Know various AI search Algorithm and their applications.
- Understand the principles and foundations of machine learning and computational intelligence.
- Ability to apply knowledge representation, machine learning, and computational intelligence to real-world problems.
- Understand the different types of recommendation systems and how to implement them.

Today Assignment,

Make a List of **7 topics** that your group think we should cover in Artificial Intelligence Course and explain why you think we should cover them in the course.

Due date: May 3, 2017

Course Outlines (Again!)

Dates		Tuesday	Wednesday	Friday
Week 01	May, 01-05, 2016	Introduction to AI and its Applications		
Week 02	May, 08-12, 2016	Search Techniques for Artificial Intelligence		
Week 03	May, 15-19, 2016			
Week 04	May, 22-26, 2016	Measuring Similarity and Distance		
Week 05	May, 29-02, 2016	Computational Intelligence		
Week 06	June, 05-09, 2016			
Week 07	June, 12-16, 2016	Machine Learning		
Week 08	June, 19-23, 2016			
Week 09	June, 26-30, 2016	Natural Network & Deep Learning		
Week 10	July, 03-07, 2016			
Week 11	July, 10-14, 2016	Recommendation Systems		
Week 12	July, 17-21, 2016	Projects & Papers		
Week 13	July, 24-28, 2016	Projects & Papers		Final Quiz

Next Time

What is intelligence?

How do we measure intelligence?

What is artificial intelligence?

Questions