



**School of Computing Science and  
Digital Media**

Faculty of Design and Technology

**Coursework Assignment**

Surname	
First name	
Matriculation Number	
Contact phone number	
Course + Year	CS4
Module Co-ordinator	
Module Number + Name	CM4107 – Advanced Artificial Intelligence
Coursework Title	
Coursework Part	1 of 2
Due Date	Monday, October 30 <sup>th</sup> 2017
Feedback Due Date	Monday, November 13 <sup>th</sup> 2017

**Declaration** \*\* *This **must** be affirmed by adding your name below with the date of submission*

**I acknowledge that by submitting the work, accompanied by this front cover, I take responsibility for the ownership of the submitted work.**

**I confirm**

- that the work undertaken for this assignment is entirely my own and that I have not made use of any unauthorised assistance
- that the sources of all reference material has been properly acknowledged.

Student Signature	
Date Submitted	

**Marker's Comments**

Marker	Grade
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\*\* An extract from the University Regulations

## 6. Academic Misconduct

Refer also to Schedule 3.3 of this Regulation for guidance on this procedure.

6.1 **Academic Misconduct** is defined as any attempt by students to gain an unfair advantage in assessments and examinations. Examples of academic misconduct include plagiarism, cheating, falsifying data, collusion, bribery or attempted bribery, personation or any other activity intended to provide an unfair advantage.

(i) **Plagiarism** is the practice of presenting the thoughts or writings of another or others as original, without acknowledgement of their source(s). All material used to support a piece of work should be carefully referenced and should not normally be copied directly unless as an acknowledged quote. Text translated into the words of the individual student should in all cases acknowledge the source.

(ii) **Cheating** includes:

- the taking of any unauthorised material into an examination;
- obtaining copy of “unseen” papers in advance of an examination;
- communicating or attempting to communicate in any way with another student during an examination;
- copying or attempting to copy from another student during an examination or in the production of coursework;
- wilful deception in any element of an examination or assessment.

(iii) **Falsification of data** consists of the misrepresentation of the results of experimental work or the presentation of results from fictitious work.

(iv) **Collusion** is the representation of unauthorised group work as that of an individual student.

(v) **Bribery** is the paying, offering or attempted exchange of an inducement for information or material intended to advantage the recipient in an examination or assessment.

(vi) **Personation** consists of a substitute taking the place of a student in an examination.

**A student who aids and abets a fellow student to commit academic misconduct shall be deemed to have committed academic misconduct and will be dealt with accordingly.**

Moodle Submission

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## Coursework - Activity 1 and 2

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Student ID	Student name	Overall Score	Grade
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• **Submission of the Coursework - Monday, October 30th, 2017 23:00 (deadline):** Activity 1 and 2 should be completed, and the corresponding material for Activity 1 and Activity 2 should be submitted to the Moodle before the deadline. The submission should include:

- Written report of 2 pages for the literature review (in PDF format).
- Slides Presentation (supporting your report) (in PDF format, maximum 7 slides).

Your report should also mention the reference to the papers you have investigated. Optionally, the report could be formatted using the following latex template:

<http://www.siggraph.org/learn/instructions-authors>.

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• **Assessment Release:** The coursework will be released during the first week of the first semester.

• **Page Limitation:** The only limitation is the maximum number of pages (overall 2 pages maximum) for Activity 1, and 7 presentation slides for Activity 2.

• **Submission Procedure:** All coursework submissions should be done via the Moodle dropbox only and before the deadline.

• **Format:** A digital copy of each submission should be made. No hardcopy are required.

• **Release of Marks:** Provisional marks will be released 2 weeks after the final submission via the online platform e-vision.

• **Release of Feedback:** Feedback will be given within 2 weeks after the submission deadline.

• **Feedback Procedure:** Feedback will be returned via moodle.

• **Learning Outcomes:** This coursework covers the following learning outcomes:

- Describe variety of methods and technologies developed for artificial intelligence that can be applied to real-world problems.
- Critically examine and evaluate relevant literature in artificial intelligence

• **How Grades are Calculated:** the score for each activity is mentioned.

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## Activity 1 - Research Reading

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Score - 35%

For this activity, each student must select exactly two different papers addressing the same topic (within the scope of this module, see the list of conference or journal below). The presentation and style of the report will also be assessed according to academic writing standard.

- All papers should be selected from relevant conferences or journals (see the suggested list below).
- All selected papers must have been published during the last 5 years.
- Check your selection with the supervisors (by email) before to start the study.
- The report should include the bibtex references of cited papers.
- No implementation are needed.

Each student must submit a report of two pages maximum. The content of the report should address the following questions:

- What is the research problem that is addressed by this paper?
- Why the problem is considered challenging in the research domain?
- Why it is important to address such problem ?
- What is the proposed approach for each paper?
- Should this paper be considered under new exciting ideas ?
- What is the main contribution of the paper?
- What was the main insight in getting the result?
- What are the strengths and weaknesses of the method?

It is highly recommended to focus on high-level ideas and principle, away from technical details. Also, the report should include an overall critical discussion about the positive aspects and limitations of both approaches. Each student is expected to discuss both papers critically and in particular the chosen methods and compare them. The organization, structure, and content of your report is part of the assessment.

List of conferences and journals in Artificial Intelligence:

- NIPS: *Conference on Neural Information Processing Systems (NIPS)*
- AAAI: *American Association for AI National Conference*
- ICML: *Intl Conf on Machine Learning*
- IJCAI: *Intl Joint Conf on AI*
- AAAI: *National Conference of the American Association for Artificial Intelligence*
- AAMAS: *International Conference on Autonomous Agents and Multi-agent Systems*
- IJCAI: *International Joint Conference on Artificial Intelligence*
- IJCAR: *International Joint Conference on Automated Reasoning*
- KR: *International Conference on the Principles of Knowledge Representation and Reasoning*
- UAI: *Conference in Uncertainty in Artificial Intelligence*

List of topics: we suggest to focus on only one theme of Artificial Intelligence of the following list:

- Manifold Learning
- Online Learning
- Active Learning
- Transfer Learning
- Reinforcement Learning
- Representation Learning
- Semi-Supervised Learning
- Unsupervised Learning
- Supervised Learning
- Bayesian Learning
- Active Learning
- Deep Learning
- Classification and Clustering, Segmentation
- Dimensionality Reduction
- Regression
- Probabilistic Methods
- Audio and Speech Processing
- Image and Video
- Object Detection and Recognition

- Robotics
- Motion and Tracking
- Visual Features and Feature Selection
- Visual Perception
- Planning
- Problem Solving
- Reasoning
- Learning Theory
- Regularization
- Brain-Computer Interfaces
- AI in Game Design, Game Theory
- Heuristic Search and Optimization
- Human-Aware AI
- Neural Networks
- Evolutionary Computation
- Uncertainty in AI
- Search and Constraint Satisfaction

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## Activity 2 - Slides

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Score - 15%

In this activity, you are required to design 7 slides maximum as the presentation material of your Activity 1. This presentation material should introduce the problem and provide a short overview of different approaches proposed covered in both selected papers, as well as the critical discussion. No presentation of the material will be made in front of the class by the students.

Student Name \_\_\_\_\_

Final Grade \_\_\_\_\_

Assessment \_\_\_\_\_ [all parts included]

GRADE	A	B	C	D	E	F+	NS
DEFINITION	EXCELLENT Outstanding Performance	COMMENDABLE Meritorious Performance	GOOD Highly Competent Performance	SATISFACTORY Competent Performance	BORDERLINE FAIL Open To Compensation	FAIL Non-submission or Unsatisfactory	NON-SUBMISSION
(35+15) <b>RESEARCH</b> (A1+A2)	Topic research thorough and covers all expected areas , excellent exposition of state of the art and presentation material	Topic research covers almost all expected areas	Topic research covers most of the expected areas	Topic research covers some of the expected areas	Topic research covers few of the expected areas	Topic research covers none of the expected areas	N/A
	Satisfies all of the expected theory applications, reproduction and creative solution.	Satisfies a substantial part of the expected theory applications.	Satisfies the basic functionality plus some additional expected theory applications.	Satisfies the basic theory applications.	Satisfies only a very limited subset of the basic theory applications.	Does not satisfy any of the basic theory applications.	N/A
	Appropriate use of data structures, including design of algorithm. Good coding style, including use of comments. Thorough documentation and testing. Excellent justification of choice of data structures	Appropriate use of data structures, including design of algorithm. Correct coding style, including use of comments, documentation and testing. Accept justification of choice of data structures with minor coding or algorithmic errors.	The implementation is roughly sketched, and an attempt to provide a complete solution was made. However, the overall implementation contains several inefficiency instructions or poor choice of data structure.	A partial solution was proposed with one or more major errors in the design of the algorithm and poor data structures. Several inefficiency or poor choice of data structures. Some syntax errors may be present.	The implementation does not strictly or rigorously transcript the ideas of the algorithm. The proposed code does not produce a result as desired. A significant number of syntax errors may be present.	Weak implementation or no implementation. The code is not compiling and no evidence of results are made. The code is not readable and it is almost impossible to understand what was realized.	N/A

Grade: <= 52 % => "F",  
 <= 64 % => "D"  
 <= 75 % => "C"  
 <= 85 % => "B"  
 >85% => "A"