

Assignment Brief – Recommended content

Coursework Title: Mini AI Projects

Module Information

Module Title: Professionalism and Artificial Intelligence Case Project

Module Code: CM0672

Module Tutor: Li Zhang

Assessment set by *(if not module tutor)*

Academic Year: 2014-2015

Dates and Mechanisms for Assessment Submission and Feedback

Date of hand out to students: 22nd Jan 2015

Mechanism to be used to disseminate to students: *(e.g. in lecture class, via elp)* In lecture class and via elp.

Date and Time of Submission by Student: 5th May 2015, 4pm

Mechanism for Submission of Work by Student: *(e.g. via Faculty Office, via elp)*

A hard copy of the report should be submitted to the Faculty Office, EB 201. All work for the group, including the product, peer assessment forms, group presentation slides and video demos, should be assembled into a single submission on a disk. Hardcopies of peer assessment forms and group presentation slides are also required for the Faculty Office submission.

A Blackboard submission is also required for back-up purposes. The reports must be submitted via Turnitin. The products and group work related material will be submitted to a designated folder on Blackboard as well by each group.

Date by which Work, Feedback and Marks will be returned to Students: Three working weeks after submission.

Mechanism(s) for return of assignment work, feedback and marks to students: *(e.g. in class lecture, in seminar sessions during Week 11, during presentation itself in Week 6, via elp and lecture)*

By e-mail and marks also on Blackboard Gradebook.

Assignment Brief

Clear statement of the work that students are expected to undertake:

The detailed assignment description is attached.

The module will be assessed by In-Course Assessment (ICA), comprising a group product (70%) and an individual report (30%). Please see the attached assignment description for details.

Part 1	Product demo & implementation	70 marks
Part 2	Individual report of approximately 2000 words	30 marks
Total		100 marks

Each group work submission should also include peer assessment forms and group logs. The peer assessment form will be used to weight each individual's group marks.

Additional Instructions to students: *(For example, clearly state here whether the work is individual, group or both. In the case of group work, also clearly indicate how marks will be awarded to the individual members of the group).*

This is a both group- and individual- based assessment.

Group Formation

The expected (and maximum) group size is four members; groups may not be smaller than three members. Groups will be formed in class, in the week commencing 19th Jan. Alternatively, you may arrange your own group, and register it by emailing the module tutor (li.zhang@northumbria.ac.uk) with the names of all your group members, by 4pm on Friday 30th Jan, 2015. Anyone who is not in a group by this point will be assigned to one by the module tutor, whose decision is final. The module tutor reserves the right to adjust groups to ensure that everyone will be in a group.

To ensure a fair split of marks, an element of peer assessment will be included and this will determine the allocation of the group portion of the marks between group members. The peer assessment form and an example of its use are given at the end of this assignment. If your attendance at seminars or in group meetings is very poor, then we reserve the right to ask you to complete the assignment individually. This is to prevent students from disrupting the learning of other students by their lack of commitment.

Further Information

Learning Outcomes assessed in this assessment: *(from the Module Descriptor)*

The following learning outcomes will be assessed by this assignment:

Knowledge & Understanding *(Subject specific knowledge/theory)*

- 1 Explain the basic knowledge and theories in affective computing and the AI area, and identify state-of-the-art applications in the games area; (Report and product)

Cognitive & Intellectual Skills *(Evaluation, selection, design, use of theories, ethics)*

- 2 Appraise affective and intelligent processes using appropriate methods; (Report)

Practical & Professional Skills *(Subject specific practical skills)*

- 3 Design and implement simple affective autonomous agents or systems using cognitive modelling, emotional animation, speech or gesture based interaction, and learning and adaptive algorithms; (Product)
- 4 Construct appropriate methodologies for the evaluations of implemented affective systems; (Product)

Key Transferable Skills *(Research skills, documentation, team-working, reflection)*

- 5 Practise research skills in the construction of their project reports and presentation of the product. (Report & product)

Assessment Criteria/Mark Scheme: *(refer to standard marking criteria that apply or replace with assessment specific criteria)*

Refer to standard marking criteria in Section 6 in the attached assignment detail.

Referencing Style: *(If students are to include reference material, please indicate here the accepted style of referencing e.g. Harvard, APA, British Standard)*

Either Harvard or British Standard is fine as long as the reference style is consistent.

Expected size of the submission: *(e.g. typical word length, number of pages, time limit for a presentation. If there is a maximum size limit, please specify along with the penalties for exceeding this limit)*

50 hours to complete the assignment.

Although there is no penalty applied, the project individual report has a 2000 word limitation. You are encouraged to follow this guideline.

The group presentation has the following requirement: **15 minutes for presentation + 10 minutes for question answering.**

Assignment weighting: *(e.g. this assignment is worth 50% of the module marks) 100%*

Academic Integrity Statement: You must adhere to the university regulations on academic conduct. Formal inquiry proceedings will be instigated if there is any suspicion of plagiarism or any other form of misconduct in your work. Refer to the University's Assessment Regulations for Northumbria Awards if you are unclear as to the meaning of these terms. The latest copy is available on the University website.

Failure to submit: Note that failure to submit work or submission of work after the required deadline without an authorised late approval will result in a record of incomplete (IC) for the assessment component. Referral in that component will then be required even when the module is passed overall.

Mini AI Case Projects

Final submission deadline for reports & group products: 5th May 2015 (4pm)

This assignment will generally give you further opportunity to explore something you are interested in in the AI field. It requires you to work in self managed teams to analyse, design, build and test a significant software product for a mini AI project. Some project ideas are provided in Section 4 for your consideration. Or you can propose your own topics.

You will work closely with your team members to deliver the final project product and individual work. There are two stages for this project assessment:

1. Stage 1: Project proposal (no weighting on marking)

Project proposal will assess learning outcomes 1, 2, 4 and 5.

After your group has chosen a project idea, a project proposal (i.e. Terms of Reference) should be produced and submitted in week 4. It should contain the following aspects:

- A general project description (what problem you plan to solve)
- Requirement specifications for all areas of functionality
- Intelligent components and AI approaches, development strategies and choice of methods that your project will focus on
- Quality assurance techniques such as testing strategies and plan
- Project plan and a section on risk management
- Professionalism such as ground rules/group code of conduct, how the group will work together, task allocations and expectations of group members
- Ethical considerations, legal aspects and social impact such as how the system will impact on others (individuals or groups in society), any ethical concerns with the system you intend to build, and any potential legal issues

Note: This component has no weighting on the overall project group work assessment. However, the project proposal acts as the first step quality control of your project. If your group does not submit a project proposal by week 4 or your group proposal is not approved, then your project work **CANNOT** proceed. If the work still proceeds, the overall mark for the module will be capped at 40%.

Informal written and oral feedback will be given to your group in week 5. You should make use of this informative feedback in developing the final product.

Project proposal approval will ensure equal (or reasonable) task allocation for each member. Task allocation will also be checked each week after proposal development in week 2. It also provides a social foundation for group work development. System integration will be checked from week 10.

2. Stage 2: Assessment allocation (100%)

This group project work will be formally assessed by the following two components:

- (1) **Product (70%):** The group product will be assessed via a group demonstration (10%) and code inspection of the software artifacts (60%).

The group demonstration:

- It will give you the opportunity to explain the key AI features of your development and conduct face-to-face discussion with the tutor. Group presentation slides and video demos of the system should also be included for submission.
- Each group member should present his/her part of the work and conduct question answering.
- A run-time system should also be presented during the group demonstration.
- The group demonstration will assess the product as a whole including integration, functionality and complexity. Especially, stability and functionality of the run-time integrated system will be assessed and marked.
- Professionalism (such as consistency, knowledgeable discussion of the work conducted and related background, etc) in project work demonstration, slide preparation and question answering will also be assessed.
- The slide presentation should also address legal, social, ethical and professional issues related to the project.

Product coding and implementation:

- Marking criteria of the product will focus on the product's overall integration, functionality, complexity and quality (including stability and AI approaches used etc). Detailed marking criteria are provided in section 6.2. Since this is an AI case project module, AI functionality has to be the core features of the product.
- Professionalism will also be assessed by coding structures of the product and peer assessment. Project log files are used to provide evidence for peer assessment.
- Project design will be checked from week 5 to week 7. Project implementation, integration and testing will be checked from week 8 to week 11.
- The mapping between project design and implementation will also be assessed.
- The outcome of the quality assurance (such as testing) will be tested with normal and exceptional inputs.

Written feedback will also be provided on both the product and the demonstration.

The product and the demonstration will test learning outcomes 1, 2, 3, 4 and 5.

- (2) **Individual report (30%):** Following on from the development, you will critically evaluate your experiences within the project and the product your group developed. This will be assessed by a critical report. Written feedback will be provided upon the critical report.

- Project reports will focus on each student's individual contribution to the overall product. Related work will need to be explored to show motivation for the selected project idea and identify system requirements and contribution of your development and group product.

- The report will assess your methodologies, design, implementation, testing strategies for any sub-components of the overall product you are responsible for.
- A critical evaluation of the overall product including integration and functionality should also be provided.
- Professionalism, ethical considerations, legal aspects and social impact of the overall project work should be critically discussed.
- Discussions on legal, social, ethical, and professionalism issues of AI applications generally should also be provided.

The individual report will test learning outcomes 1, 2, 3, 4 and 5.

3. Core product requirements

The following requirements are compulsory for your group product. Your final product should be able to run in one of the following platforms:

- A graphical-based application or game world designed and developed by your group
- A graphical-based application or game world built using a chosen game engine
- Smartphone or other handheld device based platforms
- Any other devices your project is built on (e.g. Kinect sensor and humanoid robots). These hardware equipments will be provided by the module tutor if you choose to work on any of these platforms. The module tutor will give you some help especially with the robot platform.

These platforms aim to help to demonstrate the best effects of your AI components' developments.

4. Potential mini AI project topics

The following are potential mini AI project topics for you to consider. No matter which machine learning approaches you select to use, you are required to produce your own version of the algorithm implementation following the example code provided on the blackboard. This means each method has to be fully rewritten with totally different logic flow if possible.

- Machine Learning using Decision Tree Learning

Decision tree learning is the symbolic machine learning mechanism discussed last semester. Please use the ID3 algorithm for the construction of the smallest decision tree and use it to perform decision making in a chosen application domain. You should also design your own training data and work out your version of the implementation based on the example application given. Decision tree learning is the compulsory approach under this topic category. You can also choose any other AI methods as the second or third inference algorithms in your application.

- Machine Learning using Artificial Neural Networks

You have been provided with example applications using artificial neural networks earlier. You are required to write your own neural network classes following the example application given. Then employ the artificial neural network implementation in a chosen application domain. Similar to the above topic category, you can also use any other AI methods as long as artificial neural network algorithm is included in your work.

- Game Playing

Board games have drawn AI researchers' interests for several decades. Usually a board game allows the two players to perform turn-taking with one human player and one AI player. Mini-max with alpha-beta pruning is required for such board game development in order to develop a competitive AI player. You can also use artificial neural network for the game development. Games such as Tic-Tac-Toe and Checkers are reasonable choices. You are also welcome to try more complex games such as Chess, Bridge, or Go.

- Machine Intelligence and Affective Computing

Face and object recognition is one of the well explored topics in the computer vision field. In affective computing, emotion detection and recognition from gestures and facial expressions have been intensively studied. You are welcome to develop a system to perform face or object recognition, or develop a system to detect emotions from gestures or facial expressions. Artificial neural networks or naïve Bayesian classifiers are possible choices for the implementation of this task.

Extra information: Research equipments of Microsoft Kinect and a humanoid robot are able to provide facial landmark point tracking automatically. Therefore the derived face representation may include 2D or 3D points indicating the mouth contour, eyebrow shapes, nose position and eye contour, which can be employed for subsequent facial expression analysis. The Kinect SDK requires C# programming environment, while the robot needs C++/Java/Python programming environment. If you plan to work on any of these devices, please let the module tutor know as early as possible.

- Expert Systems for Smartphones

Expert systems for medical diagnosis are classic AI applications. You are required to develop a smartphone-based system to perform skin disease (or any other type of disease) diagnosis. You can choose any machine learning approaches you have learnt so far, but the selected AI methods should be efficient enough to deal with real-time reasoning and diagnosis. The expert system can be built using any symbolic learning or probability based inference. Thus, rule-based inference, decision tree learning, naïve Bayesian classifier or artificial neural networks etc are all applicable.

- Choosing Your Own Topic

You can also select an AI topic that you are interested in and would like to know more about. You have to make sure your project idea would be suitable for a significant software product and in the meantime manageable to meet the project submission deadline. You have to identify a suitable AI approach for the chosen application domain. For example, spam email detection software would be usually built using naïve Bayesian classifier. The Traveling Salesman Problem will require you to use ant colony optimization, etc. You should discuss your idea with the module tutor before writing the proposal.

5. Summary of project submissions based on timeline

- Initial submission (no weighting on marks)
Project proposal (i.e. TOR): Deadline – 6pm, 10th Feb 2015. [Email the Module Tutor only, NO NEED for faculty office submission.]
- Final submission (100% weighting)

- (a) Group project demonstration: Week 12
Detailed arrangements will be announced later. The group presentation has the following requirement: **15 minutes for presentation + 10 minutes for question answering.**
- (b) Product and individual report: Deadline – 4pm, 5th May 2015.
The demonstration slides of each group should also be included for the group work submission. Each group product submission must be accompanied by completed peer assessment forms and group logs. Otherwise, your group work will be capped at 40%. Example peer assessment forms are attached towards the end of this assignment description. Video demos should be also included in the product submission, which will be used to demonstrate the most important AI features of your system. In summary, the following should be submitted:
- Product (group)
 - Peer assessment forms & group logs (group)
 - Presentation slides (group)
 - Video demos (group)
 - Individual report (individual)

6. Marking Criteria

In this section, the detailed marking criteria for the group work demonstration (see Section 6.1), group product (see Section 6.2) and the individual report (see Section 6.3) are provided. Please refer to marking criteria for each assessment component for further details and guidance.

6.1 Group product demonstration (10%)

	0%	50%	100%
Discussion of project implementation and AI methods used	<ul style="list-style-type: none"> • Does not show up, or • No reasonable attempt is made to discuss and justify implementation 	<ul style="list-style-type: none"> • Provides a reasonable discussion and justification of the implementation • Basic AI functionalities are implemented. 	<ul style="list-style-type: none"> • Authoritatively able to discuss and justify the implementation • Excellent AI methods are used for the project development.
Execution (stability, functionality and integration)	<ul style="list-style-type: none"> • Does not show up, or • Program completely fails to compile and/or execute • The product does not work at all with either normal or exceptional inputs. 	<ul style="list-style-type: none"> • The program does run, however the program demonstrates it is somewhat unreliable (likely to crash) without reasonable explanation. • The effects of the intelligent components are reasonably demonstrated. • The overall system is reasonably integrated and achieves reasonable complexity. 	<ul style="list-style-type: none"> • The program runs stably, and demonstrates a high degree of robustness. • Intelligent components are excellently implemented and demonstrated. • The system is well integrated and achieves good complexity. • The product can handle exceptional inputs very robustly.

		<ul style="list-style-type: none"> • The product can handle some exceptional inputs to a certain degree. 	
Quality of the presentation slides regarding to legal, social, ethical and professional issues	<ul style="list-style-type: none"> • Legal, social, ethical and professional issues are not considered at all. Or very limited evidence of the above issues is included in the slides. 	<ul style="list-style-type: none"> • Legal, social, ethical and professional issues are reasonably discussed. 	<ul style="list-style-type: none"> • Legal, social, ethical and professional issues are very well discussed.

6.2 Group product (60%)

1. System interface and stability (20%)

Interface development & stability	Marks
<ul style="list-style-type: none">No user interface has been developed. The system suffers from crashes and cannot start.	0
<ul style="list-style-type: none">A basic and limited user interface has been developed. The product has run time errors and shows crashing occasionally.	1-7
<ul style="list-style-type: none">A reasonable user interface has been developed. The application is reasonably integrated with a games world developed by your group or integrated with an existing games engine or mobile-based or any other device-based platforms. The product runs stably with some run-time errors.	8-10
<ul style="list-style-type: none">A reasonable to good user interface has been developed. The application is either integrated with a reasonable to good level games world developed by your own or reasonably or well integrated with an existing games engine or mobile-based or any other device-based platforms. The product runs stably with some run-time warnings.	11-12
<ul style="list-style-type: none">A good user interface has been developed. A good games world is developed by your own or based on an existing games engine or a mobile or other device based platform. The product runs stably without any run-time errors and warnings.	13-14
<ul style="list-style-type: none">An excellent user interface has been developed. An excellent games world is developed by your own or based on a games engine or a mobile or other device based platform. The product runs stably and shows excellent robustness and flexibility for user interaction.	15-20

2. AI functionalities and system integration (35%)

AI features implemented & system integration	Score
<ul style="list-style-type: none">There is no attempt for the development of intelligent functionality although there is some evidence of implementation. The overall system is very poorly integrated or no evidence of integration is presented.	0-3
<ul style="list-style-type: none">The system has achieved limited functionality for decision making. Although efforts have been made	4-17

to develop your own version of the AI algorithm, some aspects of the implementation has minor errors. The integration of the system suffers from poor coding or incompatible data structures.	
<ul style="list-style-type: none"> The system has achieved reasonable functionality for decision making. AI algorithms are implemented properly. The implementation is with reasonable complexity. The system is reasonably integrated but with some limitation. 	18-21
<ul style="list-style-type: none"> The system has achieved reasonable to good level of functionality for decision making. Your own versions of the AI algorithms are reasonably or well implemented. The implementation has reasonable to good level of complexity. The system integration is well conducted with some evidence on optimal data structures and modular development employed. 	22-25
<ul style="list-style-type: none"> The system has achieved good functionality for decision making. Your own versions of the AI algorithms are well implemented. The implementation has good level of complexity. The system integration is well conducted with good evidence on optimal data structures and modular development employed. 	26-27
<ul style="list-style-type: none"> The system has achieved mature functionality for decision making. Your own versions of the AI algorithms are well implemented with excellent complexity, robustness and efficiency. The system integration is excellently conducted with strong evidence on optimal data structures and modular development employed. 	28-35

3. The problem focused on (10%)

AI problems	Score
<ul style="list-style-type: none"> The application domain focuses on a classic AI problem, but not very challenging AI applications (such as gesture, speech and facial emotion recognition). 	0-3
<ul style="list-style-type: none"> The application focuses on a classic AI problem. There are also attempts for the development of advanced other AI features such as complex path finding, emotion detection, speech or gesture-based interaction, etc, but with limited success. 	4-5

<ul style="list-style-type: none"> The project focuses on challenging AI problems with reasonable success such as the development of object, gesture and face recognition, emotion detection from gesture, speech or facial expressions or any other advanced AI applications with good originality. 	6-8
<ul style="list-style-type: none"> The project focuses on challenging AI problems with great success such as the development of object, gesture and face recognition, emotion detection from gesture, speech or facial expressions or any other advanced AI applications with good originality. 	9-10

4. Training data design and professionalism in coding (10%)

Training data construction	Score
<ul style="list-style-type: none"> The training data set is prefixed and limited. The intelligent component is not able to update its training set dynamically at run time. The overall coding lacks object-oriented structures, but is more functional based. 	1-4
<ul style="list-style-type: none"> The training data set is prefixed but very well designed with a good coverage of diverse cases. However it still cannot be updated dynamically at run time. The overall coding shows some evidence on object-oriented modular development and is commented appropriately. 	5-6
<ul style="list-style-type: none"> The training data set is very well designed with an excellent coverage of diverse cases. The system is able to pick up new run-time test data records to enrich the training data. The overall coding shows good evidence on object-oriented modular development and is commented appropriately. 	7-10

5. Special development platform and new self-taught AI algorithms used (5%)

Special development platform and self-taught AI algorithms used	Score
<ul style="list-style-type: none"> There are attempts to build the group project using devices such as Kinect sensors or robots but with 	0-2

limited success. <ul style="list-style-type: none"> • There are self-taught AI approached employed but with limited success. 	
<ul style="list-style-type: none"> • There are attempts to build the work using devices such as Kinect sensors or robots with reasonable success. • There are self-taught AI approached employed with reasonable success. 	3
<ul style="list-style-type: none"> • There are attempts to build the work using devices such as Kinect sensors or robots with great success. • There are self-taught AI approached employed with great success. 	4-5

6. Mapping between system design and implementation (20%)

Mapping between system design and implementation	Score
<ul style="list-style-type: none"> • The design of the product does not match the delivered system. The system design is not taken on board for the product implementation at all. 	0
<ul style="list-style-type: none"> • There is very limited mapping between system design and implementation. Most of the system design has not been taken on board for the product implementation. 	1-6
<ul style="list-style-type: none"> • The mapping between system design and implementation is at a reasonable level. There is some evidence showing that some aspects of system design have been taken on board for the product implementation. 	7-10
<ul style="list-style-type: none"> • System design and implementation are well matched. There is strong evidence showing that majority of the core system design has been taken on board for the product implementation. 	11-13
<ul style="list-style-type: none"> • System design and implementation are extremely well matched. There is very strong evidence showing all the system design has been taken on board for the product implementation. 	14-20

6.3 The individual report (30%)

The individual report will be marked based on the following components:

30%	<ul style="list-style-type: none"> Discussions on background research, system requirements, methodologies, design, implementation and (black, white box and third party) testing of the sub-components of the overall product you are responsible for.
10%	<ul style="list-style-type: none"> A critical evaluation of the overall product including integration and functionality.
10%	<ul style="list-style-type: none"> The overall presentation of the work.
10%	<ul style="list-style-type: none"> Discussions on legal, social, ethical, and professionalism issues (LSEPI) of the project.
40%	<ul style="list-style-type: none"> Discussions on legal, social, ethical, and professionalism issues of AI applications generally. For instance, this may include robot ethics, AI-based health-care and educational applications for average and vulnerable user groups such as children and disadvantaged users. More general issues reflecting the above points also include consequences of machine intelligence, machine uprising and out-competing or fighting against mankind. It may also lead to issues such as dehumanization, underemployment, destructive applications and robotic weaponry such as program to kill, currency of codes of ethics (will today's codes of ethics work with tomorrow's technology), and AI law etc. Your answer should be supported by references to reliable sources. Tempting as it might be you should avoid basing your answer around science fiction. The focus should be upon current and potential real world aspects rather than fantasy.

The detailed marking criteria for each component of the report are provided in the following.

	Report (30%)
0 – 29%	<ul style="list-style-type: none"> The work has a significant amount of misspellings and grammatical errors No any related research is discussed at any level The report lacks evidence of real implemented work. Points about approach taken and implementation are hardly presented No testing is discussed at any level No evidence of originality LSEPI of the project and wider AI applications is not discussed at all.
30 – 39%	<ul style="list-style-type: none"> Although word processed, the spelling and grammar are not to a good standard No critical analysis of relevant work or it is poorly presented Points raised about approach taken and implementation are confusing and very limited There is very little evidence of testing, and most problems identified are left outstanding Poor originality Only LSEPI of the project is very briefly discussed with limited success. The LSEPI of wider AI applications is not presented or appears to be based on the work of science fiction.
40 – 49%	<ul style="list-style-type: none"> Generally written and presented to a reasonable standard. Likely to contain some spelling and grammatical errors Limited discussion on relevant work but it is well presented Discussion on approach taken and implementation stages is reasonable but limited Limited evidence of testing, and testing appears to be more about proving things work than finding what causes it to fail Limited originality

	<ul style="list-style-type: none"> • LSEPI of the project and wider AI applications is very briefly discussed with limited success. Appropriate sources are used to support the analysis. Real world examples are provided.
50 – 59%	<ul style="list-style-type: none"> • Written to a good standard, most of the spelling and grammatical errors have been addressed • Reasonable level of discussion on relevant work and it is well presented • Discussion on approach taken and implementation stages is sufficient and clear • Some evidence of testing and some discussion on identified problems • Some originality • LSEPI of the project and wider AI applications is reasonably discussed with some success. Appropriate sources are used to support the analysis. A range of real world examples are provided.
60 – 69%	<ul style="list-style-type: none"> • Written and presented to a very good standard. Clear that time has been spent on proof reading • Good sufficient critical analysis of relevant work and it is well presented • Good and sufficient discussion on approach taken and implementation stages • Good evidence of testing including using normal testing strategies and third party testing, and potential solutions for identified problems are provided • Good originality • LSEPI of the project and wider AI applications is well discussed with sufficient good success. A comprehensive range of sources are used to support the analysis. A wide range of real world examples are provided.
70 – 79%	<ul style="list-style-type: none"> • The report is faultless, excellently presented with no noticeable spelling or grammatical errors • Excellent knowledge and critical analysis on relevant work • Excellent, clear and concise discussion of approach taken and implementation stages • Excellent evidence of testing including using various testing strategies and third party testing, and potential solutions for identified problems are provided and well discussed • Excellent originality • LSEPI of the project and wider AI applications is excellently discussed with great success. A comprehensive range of sources are used to support the analysis. A comprehensive range of real world examples are provided.
80+	<ul style="list-style-type: none"> • The report is faultless, excellently presented with no noticeable spelling or grammatical errors • Excellent knowledge and critical analysis on relevant work with in-depth discussion • Excellent, clear and concise discussion of approach taken and implementation stages • Excellent evidence of testing including using various testing strategies and third party testing, and potential solutions for identified problems are provided and well discussed • The work focuses on challenging research problems and the overall development has high research quality. The work achieved is publishable. • Excellent originality • LSEPI of the project and wider AI applications is excellently discussed with in-depth profound considerations and success. A comprehensive range of sources are used to support the analysis. A comprehensive range of real world examples are provided. An insightful analysis.

6.4 Peer Assessment

The group must submit

1. One peer-assessment form for each group member. This will need to be agreed and signed by each group member. The peer assessment template is available on Blackboard.
2. Evidence for the peer assessment in the form of meeting minutes. A group log form is available on Blackboard to help with this.

If these are not supplied the mark for all group members will be capped at 40%.

Using the peer assessment form you will be able to calculate a score which measures your peers' views of the quality of your team work in this task, and transform this into a weighting to be applied to your group mark, reflecting their assessment of your contribution.

We reserve the right to consult with you and potentially change the weightings (and in extreme cases marks) when this is felt necessary. We will not do this before the assignment is handed in.

On the form, each student's performance in the team is graded on five criteria. Each criterion will be given a score of between 3 and 8. Once all the criteria have been graded, the five scores will be totalled to give that person's Team Work Total, which will be between 15 and 40.

Once the peer assessment forms have been completed for all members of the group it is possible to determine the group average. This is calculated by adding up the Team Work Totals for all the group members and dividing the total by the number of group members. Only calculate this to 2 decimal places.

A weighting can then be calculated by dividing the student's Team Work Total by the Group average. Only calculate this to 2 decimal places.

The weighting will be applied to the group component of the assessment only. A student's weighted group mark will be determined by multiplying the group mark by the weighting. This will be calculated to the nearest whole number.

Peer Assessment Example

A group of 3 students, Rob, Jane and Fred, obtain a group mark of 40/60.

What they may have put on their peer assessment forms is on the next three pages.

Using the calculated weightings, their marks will be as follows:

Name	Group Mark	Weighting	Weighted Group Mark	Individual Mark	Total
Rob	40/60	0.92	37	20/30	57 / 90 = 63%
Jane	40/60	1.15	46	24/30	70 / 90 = 78%
Fred	40/60	0.85	34	15/30	49 / 90 = 54%

-	Name	Signature
Student Name	Rob	
Other group members	Jane	
	Fred	

Score	3	4	5	6
Criteria	Unsatisfactory	Poor	Satisfactory	Good
Demonstration of relevant skills and knowledge			X	
Attendance at group activities			X	
Contribution to group meetings			X	
Performance of agreed tasks outside of group meetings		X		
Works co-operatively and considerately with other team members			X	
Rationale – What is the justification for the above scores?				
This is the reasons for the above marks and must be included. Otherwise what justification exists for the above marks?				
Team Work Total	24	Group Total	78	Group Average
Weighting (Team Work Total / Group Average)	0.92			

-	Name	Signature
Student Name	Fred	
Other group members	Jane	
	Rob	

Score	3	4	5	6
Criteria	Unsatisfactory	Poor	Satisfactory	Good
Demonstration of relevant skills and knowledge		X		
Attendance at group activities		X		
Contribution to group meetings		X		
Performance of agreed tasks outside of group meetings			X	
Works co-operatively and considerately with other team members			X	

Rationale – What is the justification for the above scores?				
Missed a couple of meetings and didn't contribute a lot to meetings when he came along. Did the work he was a volunteer. Didn't really understand sequence diagrams until Jane explained them.				
Team Work Total	22	Group Total	78	Group
Weighting (Team Work Total / Group Average)	0.85			
-	Name			Signature
Student Name	Jane			
Other group members	Rob			
	Fred			

Score	3	4	5	6
Criteria	Unsatisfactory	Poor	Satisfactory	Good
Demonstration of relevant skills and knowledge				
Attendance at group activities				X
Contribution to group meetings				X
Performance of agreed tasks outside of group meetings				X
Works co-operatively and considerately with other team members			X	
Rationale – What is the justification for the above scores?				
A good contribution all round... etc.				
Team Work Total	30	Group Total	78	Group
Weighting (Team Work Total / Group Average)	1.15			