ARTIFICIAL INTELLIGENCE (AI) SCSJ3553 PROJECT GUIDELINES

(For Section 3 & Section 7)

Games using Artificial Intelligence Techniques

Artificial intelligence is said to be mimicking human intelligence by generating intelligent behaviors. Artificial intelligence (AI) is often referred to a broad set of algorithms that include techniques from control theory, robotics, computer graphics, artificial intelligence games and computer science in general.

For SCSJ3553 class project, each group has to choose a game, which was developed using techniques in AI. The group must support the techniques used in developing the games with at least 10 references taken from books, research papers or any other reliable sources. Techniques can be chosen from our course outline (but not limited to).

Below are the techniques discussed in lecture, which can be selected to complete the project:

- Strategy for state space search (goal-driven or data-driven)
- Exhaustive Search Algorithm (backtracking, breadth-first search, depth-first search)
- Heuristic Search Strategy (Best-first Search, A* Search)
- Heuristics in Game Playing [Alpha-Beta Pruning search algorithm (using minimax algorithm)]
- Building Control Algorithms for State Space Search (Recursion-based Search, Production System, Blackboard Architecture)
- Knowledge Representation (Semantic Network, Frames, Conceptual Graph, Agent-Based and Distributed Problem Solving)

Each group has to come up with a game concept and detailed descriptions. Bring along the video of the game or the actual game during presentation. In order to make this project successful, there are a few steps to follow. Below are the steps:

1. Prepare and submit a brief proposal about the game concept that has been discussed and selected by your group. This is to introduce the name of the game, how the game is played and AI techniques applied. This proposal should specify your group name, group member's names, the name of the AI game and the techniques applied. (Upload the completed proposal to elearning & submit the printed version to lecturer's office.)

   Deadline: 27th November 2014

2. Group discussion & study on the AI games selected, concept of the game (how the game is played, the techniques involved, show how the AI techniques are applied on the game and the organization of the project report).

   The project report must include:

   i. A cover with UTM logo, course name and code, course section, specify AI Project, group name and lecturer's name.
   ii. Report's content
   iii. Introduction
   iv. Literature review page and a summary in a table
   v. Methodology of the AI Game
   vi. Summary and Review by your group
   vii. Gantt Chart
   viii. References

   Supporting figures (images), tables or graphs must be included to make your report interesting to be read.

   Duration: 18th November – 16th December 2014

3. Completion of report & Submission due (elearning & printed).

   Deadline: 13th December 2014

4. AI Games project presentation.

   Date: 16th December 2014