GAME AI ANALYSIS PAPER

MIDTERM PAPER ~ CS 4150/5150 ~ FALL 2013

DEADLINES

This is not an assignment; therefore, late days may not be used on it.

Outline Draft Due: September 17, 11:59pm
Peer Feedback Due: September 27, 11:59pm
Second Draft Due: October 4, 11:59pm
Peer Feedback Due: October 11, 11:59pm   *[Instructor feedback is also promised by this date.]*
Final Paper Due: **October 25, 11:59pm**

DESCRIPTION

You may choose any games you wish that meet the constraints of your topic; if you have questions about whether a game you have chosen is appropriate, you should ask me.

TOPICS

You are required to choose **one** of the following topics for your midterm paper:

TOPIC 1: AI IN A DIGITAL GAME

You role for this topic is that of an AI intern at a small game studio. You have been been tasked with reporting on the current state of AI in games as part of analyzing your studio's competition. Choose two digital games you have played that use AI in a similar way in their design. For example, you may wish to choose two games that are heavily dependent on companion AI, or two games that use procedural content generation. Write a report for your supervisor that compares and contrasts these two games in terms of their design, especially focusing on how the AI impacts player experience. Use the MDA framework discussed in class, along with any other theoretical frameworks you find in your research for this paper, to help ground your claims about how the games are designed. Report on how the AI systems in the games work, if the information is available. You may also wish to consider some of the following questions in your response: a) what would the games be like without the AI? what would make the AI stronger or weaker?

TOPIC 2: AI TO PLAY AN ANALOG GAME

Your role for this topic is that of a producer working at a company that specializes in converting board games to digital games. You have been tasked with writing up a requirements analysis for the next game the company will produce, based on a board game of your choice. You can choose any kind of multiplayer analog game,

including board games, card games, and tabletop roleplaying games—however, you should **not** choose a game that is based heavily on luck (e.g. *Candyland* or *Snakes and Ladders*).

The nice thing about board games is that a lot of them already have easily discretizable, mathematical systems built in to them, which can be simple to turn into computational models. Spend some time in your paper describing those systems, grounding the discussion using the MDA framework discussed in class, along with any other theoretical frameworks you find in your research. However, you should make sure to have the focus of your analysis be a discussion of the parts that are harder to implement: the AI that replicates the experience that comes from playing with other humans. Bear in mind all the ways that humans interact when playing the game of your choice; your goal should be to identify the main challenges that will need to be overcome in creating this AI system, and to suggest avenues for getting started with the AI system design.

FORMATTING REQUIREMENTS AND REFERENCES

Write an approximately **2000-2500 word** internal company memo that addresses the topic you have chosen. Your memo should be single-spaced, using 11pt font and 1" page margins. The word limit is only a guideline—if you feel you can write a substantial report in fewer or greater words, then you may do so (though you are encouraged to explore whether this is possible in your drafts!). Feel free to include as many images and diagrams as you feel are necessary to illustrate your arguments; you may also wish to include links to videos of gameplay. Organize your memo such that it will be easy for your supervisor to read; for example, you should section headers rather than write it as a traditional essay.

In addition to the main memo, your final submission must include an **executive summary** that is no longer than **1 page**. The executive summary should outline the main points you will be making in your report.

Your team may want to be able to dig deeper for further information, so make sure to include enough information in your references that they will be able to find additional information without needing to ask you. At a minimum, you must include a reference to the game(s) that you have chosen to analyze. Make sure to give appropriate credit to games you refer to, any images you use in the report, and any other sources you use. You must provide an in-text citation for any claims you make; that in-text citation should refer to a footnote that includes full bibliographic information for your source that is formatted using the AAAI Press style[1]. References to written sources **must** include the following information: author, title, venue of publication, editor (if applicable), date published, date accessed (if online), location of conference (if applicable). References to games **must** include the following information: developer, publisher, game title, date of publication, date played.

Keep any game criticism fair and your writing style professional. Remember that there is always the risk of internal memos being leaked, either to the public or to your competition; **anything with your name attached to it reflects on you personally**.

DRAFT GUIDELINES

There will be two written drafts due before the final paper deadline. There are very few strict guidelines about how these drafts should be constructed; you should consider these draft deadlines as opportunities to receive feedback on your paper before the final version is due. You will get as much value out of your paper drafts as you put into them.

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[1] http://www.aaai.org/Press/Author/authorguide.php#references

OUTLINE: SEPTEMBER 13

This should outline the main points you plan to make in the paper, but does not need to be a complete draft. It is fine in this draft to include notes in the text where you plan to do additional research and have bullet points instead of complete sentences. However, it is recommended that this draft include a description of the games you are analyzing and a rudimentary analysis of their design using the MDA framework. Use this draft to organize your initial thoughts and solicit feedback from your peers on your early ideas and planned arguments.

SECOND DRAFT: OCTOBER 4

This should be a complete draft of your paper, including full sentences, references, and images. The goal with this draft is to receive feedback on the writing itself (including spelling and grammar issues) and on how well your argument is constructed and backed up. This draft will be reviewed by your peers and by course staff.

EVALUATION

The final paper will be reviewed according to the following rubric. When providing peer feedback, you should keep this rubric in mind.

	Very Good (7-10 points)	**Acceptable** (3-6 points)	**Poor** (0-2 points)
Coherence of Argument (25%)	Well-reasoned, logical, and cogent argument; has a strong thesis statement that is backed up with supporting evidence	Flawed reasoning in argument; poorly developed thesis statement; lack of evidence to support claims	Severely flawed argument or lack of argument
Use of Sources (25%)	Refers to all sources appropriately; additional sources relevant to topic were sought out; sources are reflected upon and synthesized	Lack of variety in sources; includes only a description or paraphrasing rather than reflection on source material; uses only sources that present a one-sided argument	Does not sufficiently ground claims in external sources; sources are not referenced appopriately
Technical Soundness (25%)	Interpretation of source material is reasonable, analysis is sound and proves understanding of the material	Interpretation of source material has minor flaws that reflect an incomplete understanding	Interpretation of source material has major flaws; makes false claims
Writing Mechanics (10%)	Written professionally and for the appropriate audience, very good spelling and grammar, appropriate tone and word choice	Several grammar and spelling errors; casual tone and use of colloquialisms	Large number of grammar and spelling errors such that the document is difficult to read and interpret; inappropriate tone or language
Format and Organization (5%)	Well-organized with well-chosen section headers; easy to parse visually; appropriate use of figures, diagrams, and game screenshots/video	Acceptable use of section headers to organize thoughts; can be parsed visually; too many or too few figures based on what's expected from written report	No section headers or completely inappropriate section headers; challenging to parse visually due to formatting problems; figures lack captions or in-text references
Executive Summary (10%)	Fits within a single page; highlights important information and arguments from full report	Does not meet page requirement; does not adequately summarize important information	Does not meet page requirement; fails to provide acceptable overview of the full report

Please note that **any** evidence of plagiarism or cheating will result in a failing grade on the midterm paper, and consequently a failing grade in the entire course per the course grading policy. All cases of academic dishonesty are reported to OSCCR.

ADDITIONAL RESOURCES

1. Justin Zobel's *Writing for Computer Science* provides a nice, discipline-specific set of suggestions for becoming a better writer. I have a copy of this book in my office.
2. The *Chicago Manual of Style* is a classic reference manual for writers in several disciplines; the AAAI style is based heavily on Chicago's.
3. Northeastern has a writing center intended to give students feedback and assistance with their writing projects. I strongly encourage you to make use of this excellent resource. Their website also includes a repository of helpful information on citation styles, grammar and usage, and reference resources. Information about the writing center, including instructions for setting up appointments, is available here: http://www.northeastern.edu/english/writing-center/

SUBMISSION INSTRUCTIONS

Each deadline will have a turnitin assignment associated with it on Blackboard. Peer feedback will also be administered through the "PeerMark" system in turnitin, accessible via Blackboard. All work **must** be turned in through Blackboard. **Emailed reports will not be accepted**.