

CMSC 722, AI Planning Term Projects

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Requirements

- You will need to do a term project related to AI planning
 - ◆ To be done by teams of 2 or 3 people
 - ◆ Come up with an idea to investigate
 - ◆ Figure out how to carry out the investigation
 - » Either theoretically or experimentally or both
- Start thinking about whom you'd like to team with
 - ◆ Do you feel comfortable with them? Do their interests and abilities complement yours? Do you think you can depend on them? Do you think you can work well together?
- Project proposal near the middle of the semester
 - ◆ Written proposal and in-class presentation
 - ◆ Describe what you are going to do for your project
- Final report at the end of the semester
 - ◆ Written report and in-class presentation
 - ◆ Describe your results

Proposals

- Purpose is to make sure
 - ◆ you have a good idea
 - ◆ you know how to carry it out
- You won't get a separate grade for the proposal, but you'll need me to approve it
- Written proposal
 - ◆ Email it to me as a PDF file
 - ◆ A few pages long
 - ◆ Font size: 11 points
 - ◆ Margins at least one inch wide
 - ◆ The deadline is in the lecture schedule
 - » If you can't get it to me by that time, there's also a deadline for submitting late proposals with a 5% penalty
 - » If you can't get it to me by the deadline for late proposals, you're in trouble

Proposal Outline

- **Title and authors**
- **Overview:**
 - ◆ Summarize what you want to do, and why it's worth doing
- **Key Ideas:** What are you proposing to do?
 - ◆ Why is it interesting and significant?
 - ◆ What leads you to believe your approach will work?
 - ◆ If your work is successful, what will it accomplish?
- **Evaluation**
 - ◆ How will you measure progress and results?
 - » E.g., what experiments will you perform to prove your hypothesis?
- **Project management**
 - ◆ What are the major tasks to accomplish?
 - ◆ Who will do which tasks?
 - ◆ Tentative schedule showing when you'll start and finish each task

In-Class Presentation

- 10 to 15 minutes for the presentation, followed by another 10 minutes of discussion
 - ◆ I've reserved dates in the class schedule
 - ◆ As we get closer to the presentation dates, I'll schedule specific dates and times for each of you

Final Reports

- Written report
 - ◆ Email it to me in PDF format
 - » A few pages long
 - » Font size: 11 points
 - » Margins at least one inch wide
 - ◆ The deadline is in the lecture schedule
 - » If you can't get it to me by that time, there's also a deadline for submitting late proposals with a 5% penalty
- You will need to do a 15-minute in-class presentation of your project
 - ◆ Dates are reserved in the class schedule
 - ◆ As we get closer to the presentation dates, I will schedule specific dates and times for each of you

Report Outline

- **Title and authors**
- **Introduction:** Main purpose is to get the reader interested in reading the rest of the report.
 - ◆ Summary of what the topic is, why it's interesting, what your results are
- **Related work (can either go here or just before the conclusions)**
 - ◆ What others have done
 - ◆ Strengths and weaknesses of their work
 - ◆ How it compares to your work
- **Approach**
 - ◆ What your idea is, and how it works
 - ◆ Make sure your explanation would be clear to someone who knows nothing about the topic
- **Theoretical Results (if you have any)**
 - ◆ Theorems, proofs, examples, etc.

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Report Outline (continued)

- **Implementation (if you have one)**
 - ◆ What it does, what language or system it's written in, etc.
 - ◆ Use figures or screendumps if appropriate
- **Experiments (if you have any)**
 - ◆ Purpose (e.g., experimental hypotheses you wanted to test)
 - ◆ Experimental design
 - ◆ Experimental results
 - » Use tables or graphs (preferably graphs)
 - ◆ What the results mean
- **Conclusions**
 - ◆ Summarize what you accomplished
 - ◆ What significance or impact or meaning does it have?
 - ◆ Honest assessment of the limitations of your work
 - » What one could do overcome those limitations
- **References**
 - ◆ All of the references that you cited in the paper

How to Get Started

- Think about what you're interested in!
- Some possible sources of ideas
 - ◆ Chapters in the book, published papers
 - ◆ The homework problems in the book
 - » Too simple by themselves, but might be a starting point for something
- Get together with others and have a brainstorming session
 - ◆ Need a blackboard or whiteboard. Designate someone to write on it
 - ◆ Everyone should start throwing out ideas – brief phrases
 - » Don't discuss or criticize any of them
 - » The writer should put each of them on the blackboard
 - » Don't censor yourself – propose ideas even if they seem crazy
 - ◆ Keep going until you run out of ideas
 - » **Then** discuss them to see which ones make sense
- Come talk to me
 - ◆ I can give you feedback about your ideas, and maybe suggest some ideas

What Makes a Good Term Project

- If you succeed in carrying out your idea, will the result be interesting?
 - ◆ Interesting to you? Interesting to others?
- Think about what would be needed to carry out the idea
 - ◆ Is it too hard to accomplish in the amount of time that you have?
 - ◆ Is it too easy to count as a “real” project?
- Think about how to ensure success regardless of how the result turns out
 - ◆ How confident are you that you’ll get the result that you want?
 - » E.g., is there a chance that your experiments will produce a different result from what you had hoped?
 - » If that happens, will the result *still* be interesting?
- On the “private materials” page are some examples of term projects from previous years