

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

Proposal Outline

- **Title and authors**
- **Abstract:** quick summary of what you're proposing, and why it's worth doing
- **Introduction** (*convince the reader that the rest of the proposal is worth reading*)
 - ◆ What topic do you propose to work on? What have others done on that topic? What remains to be done? Why is it interesting and significant?
- **Technical approach** (*describe the work you'll do*)
 - ◆ What approach do you intend to use? Why do you think it will work?
 - ◆ How will you evaluate it? (e.g., theorems and proofs, implementation and experiments)
- **Project management** (*make sure you can actually perform the work*)
 - ◆ What are the major tasks to accomplish?
 - ◆ Who will do which tasks?
 - ◆ Tentative schedule showing when you'll start and finish each task
- **Conclusion** (*explain why the proposed work is worth doing*)
 - ◆ Summary of what you think you'll accomplish, and why it's worthwhile

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
- By noon on the day of your presentation, please email a copy of it to both the TAs and me
 - ◆ Either PDF or PowerPoint

Final Reports

- Written report
 - ◆ Email it to me in PDF format
 - » A few pages long
 - » Font size: 11 or 12 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**
- **Abstract:** quick summary of what you've accomplished
- **Introduction** (*convince the reader that the rest of the proposal is worth reading*)
 - ◆ Summarize the problem you worked on, why the problem is important, and 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 will be clear to someone who's not already familiar with what you're doing
- **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

Organizing Your Teams

- Try to form teams of 3 people
 - ◆ There are 22 people in the class, so a few of the teams will be just 2 people
- Think about whom you might like to team with
 - ◆ Look at what people said about themselves on Piazza
- If there's someone you might be interested in teaming with, try to get to know them
 - ◆ Do you feel comfortable with them?
 - ◆ Do their interests and abilities complement yours?
 - ◆ Do you think you can work well together?
 - ◆ Do you think you can depend on them to get the work done?

Developing Topics for Projects

- Some things to look at
 - ◆ Chapters in the book, published papers, the homework problems
 - ◆ Discuss ideas on Piazza
 - ◆ The TAs will try to come up with suggestions for topics
- 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 and criticize them
 - » Figure out which ones make sense
- Come talk to me and/or the TAs
 - ◆ We can give you feedback and suggestions

What Makes a Good Term Project

- What will 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?
- Is the project worth doing?
 - ◆ Is it something that interests you? Will you have fun doing it?
 - ◆ Will the results be interesting if they turn out the way you expect?
 - ◆ Will the results still be interesting if they turn out *differently* than how you expect?
 - » Negative results can sometimes be just as interesting as positive ones
- On the password-protected page are some examples of term projects from previous years
 - ◆ Project proposals, final reports
 - ◆ Unfortunately, I don't have the in-class presentations