CS540 Project #2
Spring, 2018
Code Freeze: Tuesday, April 10
Paper/Presentation Due: April 17

Team Formation

Teams for this project are the same as for Project #2, unless you have another arrangement with the instructor

Task

The task has three components. The first is to improve your drone world planner from Project #1. The second is to write a paper and prepare a presentation about how well your (hopefully improved) planner worked on problems assigned by the instructor. The last is for each team member to write a brief (one column) explanation of their contributions to the project. All three parts are described below.

The first subtask is to improve your planners. As many groups discovered in Project #1, drone world has a vast search space. Planning by searching at the level of drone motions is inefficient, at best. Instead, what you need is to build an abstract planner, something that searches at the level of subgoals. For examples, subgoals might include "move block X to position Y" or "move drone to position X" or "clear the top of block X" or "build a tower of height X at position Y". By raising the level of reasoning to these more abstract actions, it becomes possible to solve more complex problems. To challenge is in (1) creating the action set, (2) recognizing preconditions (which can hopefully by created by creating more subgoals), and (3) using your low-level planner to come up with sequences of low-level drone actions to implement the more abstract (sub)goals. You have until April 10th to do this.

On April 10th I will release a small set of test problems. At this point your goal is to write a paper and presentation describing (1) why you build the system you did (i.e. why did you think it would perform well), (2) how the system ended up performing on my test cases, and (3) why you ideas either did or didn't work. Note: your system might perform poorly, but if the design was reasonable (not knowing the specific problems) and your analysis of why it failed is good, you can still get an 'A'.

The second component is to write a four-page (no longer[1]) paper in 2-column IEEE format. The first section be the introduction, and it should motivate why you built the system you did, why you thought it might work well, and give a brief overview of how well it performed and why. There will be no literature review, so section two describes the design of the system you built in detail. Section 3 presents and analyzes the results on the given problems. Section 4 is a conclusion. You will also prepare and give a five minute (no longer) oral presentation with

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[1] Page limit includes all figures and tables, but not references.

slides in class. As before, slides must be emailed to the instructor 24 hours before the lecture in which they are to be presented, so that all slides can be preloaded onto a single laptop for rapid-fire presentations.

The last component is individual, not team. Every student will write a brief paper one IEEE column long (no longer) describing their contribution to the team's project.