This summer I worked on creating behaviors for Bowdoin’s RoboCup team. RoboCup is an international organization focused on fostering progress in areas such as hardware, electrical, and software engineering through competition. Specifically, we play autonomous robotic soccer. Bowdoin’s team, the Northern Bites, competes in the Standard Platform League (SPL). In the SPL, all teams have to use the same robots with no hardware modifications so that the focus is on the software that each team uses. This summer, in Istanbul, we competed against 27 teams from around the world, most of which were from graduate schools with access to more resources than Bowdoin. We placed in the round of sixteen at competition and look forward to this coming year as we plan to make more progress.

In applying for this research opportunity, I was excited to learn and implement several systems that would help our team and provide interesting solutions to various problems that we face. I had set out to implement a potential field, which is a field of hills and valleys of charges, to use for positioning the robots. This sort of system just allows the robot to move downhill until it reaches a minimum point. While this system is simple in principle, it required much more foundation than what our system could offer at the time. As with any research project, I learned that many obstacles needed to be tackled before I could address the end goal of the potential field. I was expecting this to happen and made my research topic very broad to encompass all that I might be working on.

In working out the smaller problems, I found that many of them had a common source; inaccuracies and bugs in our lower level systems were propagating up to behaviors and affecting decisions that the robot made. Unfortunately it was too late to fix all of that before competition, but we are all looking forward to relaying the groundwork of our system this coming year. We have learned the value of an accurate, precise, and reliable system, accurate being to come up with the right value, precise meaning to be consistent with similar input, and reliable being to do well under all possible scenarios and report any errors or peculiarity in a useful way. I look forward to developing with those values in mind in the future.

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