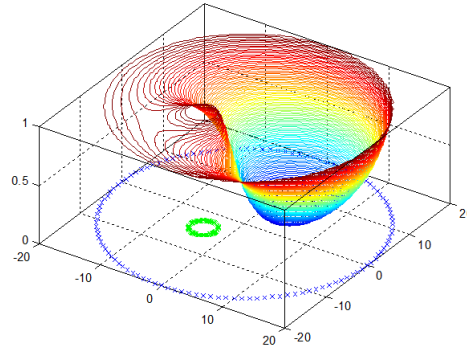


Wk 9 Assignment

Due: Monday, Dec 3, 11:59pm EST



1 Objective

The objective of this assignment is to implement a navigation function and meld it into a waypoint navigation system. ie. the robot moves from one goal to another to another, etc. You are provided the following files:

1. `WaypointPotField_user.m`: A script that initializes a robot and drives it to series of goals. The meat of the controller is taken out, but the script will update the INS sensor for you. Start and goal points are given, but are not necessarily the ones that will be graded.
2. `PotField_user.m`: Should return unit vector in the intended direction of travel. The obstacle positions and radii are given.
3. `circularMap.bat`: Starts USAR with the circular map space.
4. `CircularWorkspace.ut2`: A circular workspace. There are three obstacle for you to avoid. There is no grid on the floor; you must find the obstacle coordinates in `PotField_user.m`.

Requirements: You MUST use MATLAB to complete this assignment.

2 Task 1: (30 points)

Modify `WaypointPotField_user` and `PotField_user` to enable a robot to navigate from a start position to a series of goal positions by constructing a navigation function for the workspace. This task will require you to construct a navigation function for the circular workspace. It may be helpful to visualize your navigation functions for debugging purposes; look up the `surf()` and `quiver()` commands in MATLAB. Before you submit the files, make sure to rename the file such that `user` is replaced with your Drexel login.