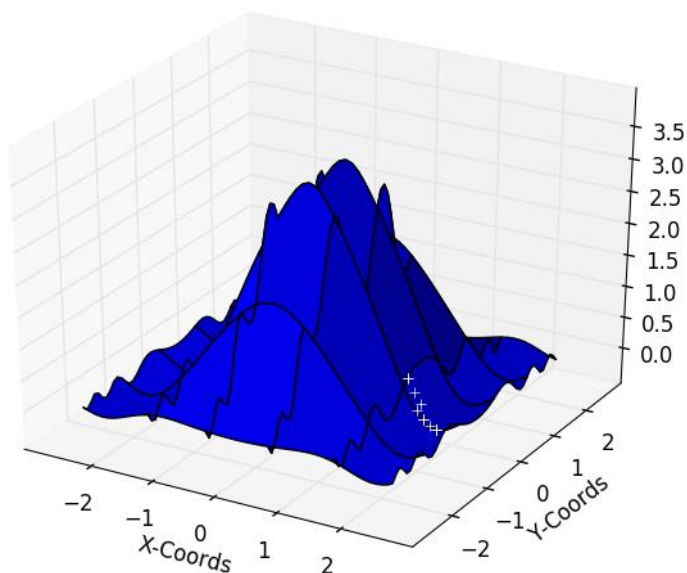


## Artificial Intelligence Project 2 Report

Hill climbing in this project tends to find the minimum coordinate by checking to see if the neighbors have a better solution based off of a given function. If there is a better solution, a decremental change is made to the solution; this process is repeated until no better solution can be found. Hill Climbing with random restarts would restart the search a specific number of times and yield the minimum result out of all the searches performed. Simulated annealing performed a search based off of the given maximum temperature. The temperature is gradually cooled and the function finds itself a minimum value at a certain temperature.

Out of the three methods used for this project, hill climbing with random restarts took the longest but gave the most accurate results. Simulated annealing performed faster and took the shortest amount of time but did not yield the most accurate results. Although Hill Climbing with random restarts took the longest, it gave the most accurate results because the method would restart the search a specific number of times and choose the best coordinates out of the list of coordinates generated. Overall, this was a very interesting project it was nice to see the graphs generated by the paths.



### Results for Graph:

Hill Climbing for Minimum Result: (x,y,z)---> 2.0090835365325383, -0.4723339297747188, -0.13044342946929194

Time taken for Hill Climb 0.010903707523307757

Hill Climbing with Random Restart for Minimum Result: (x,y,z)---> -1.8254311413106539, 1.6247337756315678, -0.10205201189839856

Time taken for Hill Climb with Random Restart 0.13027752540565274

Simulated Annealing: (z) ---> -0.1262613884753185

Time taken for Simulated Annealing 0.00021676861223340893