Assignment 0 Report

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1 Question

Given an infinite field of certain length, the infiltrator must cross the field to arrive at his destination.

2 Assumptions and Simplifications

We have assumed that the field in this case as a 2-D array, the infiltrator, at any point may move in any direction towards the destination, depending on which sensors surrounding it is on or off. When either his current position or all the ones surrounding him have their sensors working, he will not move. This means that at the end of the program, he will have arrived at his destination.

3 Code

We have used different classes for the infiltrator, the border(the grid as a whole) and for the sensors. Different values for the probability that a point has it's sensor on is also fed to the program, along with different values of the width of the field. We have made in such a way that the infiltrator will never go backwards.

4 Conclusion

We had expected to get a steady increase for the average time with increase in both probability and width. However, keeping probability constant and increasing the width does not lead to a monotone increase in Average Time.

5 Graph

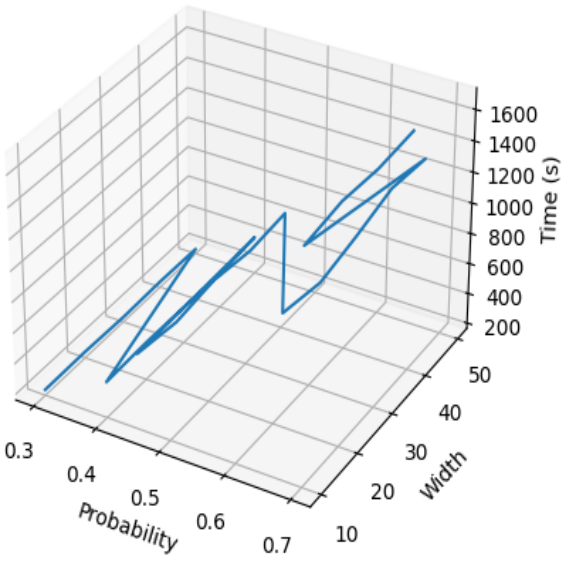

Figure 1: Graph showing effect on Average Time by Width and Probability