Performance Report

The Hunt Kill Algorithm is slower but it can also go above size a certain height and width (in my case 150x150), the Recursive algorithm gets a stack overflow error whenever it tries to go overt the limit. Recursive is faster (even with the random element).

My version of the recursive algorithm has only a foreach loop (the direction list also needs to be randomized). Because of this I believe that the Big O complexity is O(n). For the Hunt Kill algorithm, my version uses 4 for loops and one foreach loop (the direction list also needs to be randomized). I believe that for this one the Big O complexity is O(n2) or O(n3).

Both algorithms performed marginally better when being used in release then in debug. The times of generation were (bar any unluckiness with random) always lower then in debug.

I tried to improve the algorithms by removing all the unnecessary creations of new objects I could find. At one point I tired to use parallel loops for the hunt kill algorithm however they where slower when used with lager sizes or they threw out of bounds errors.

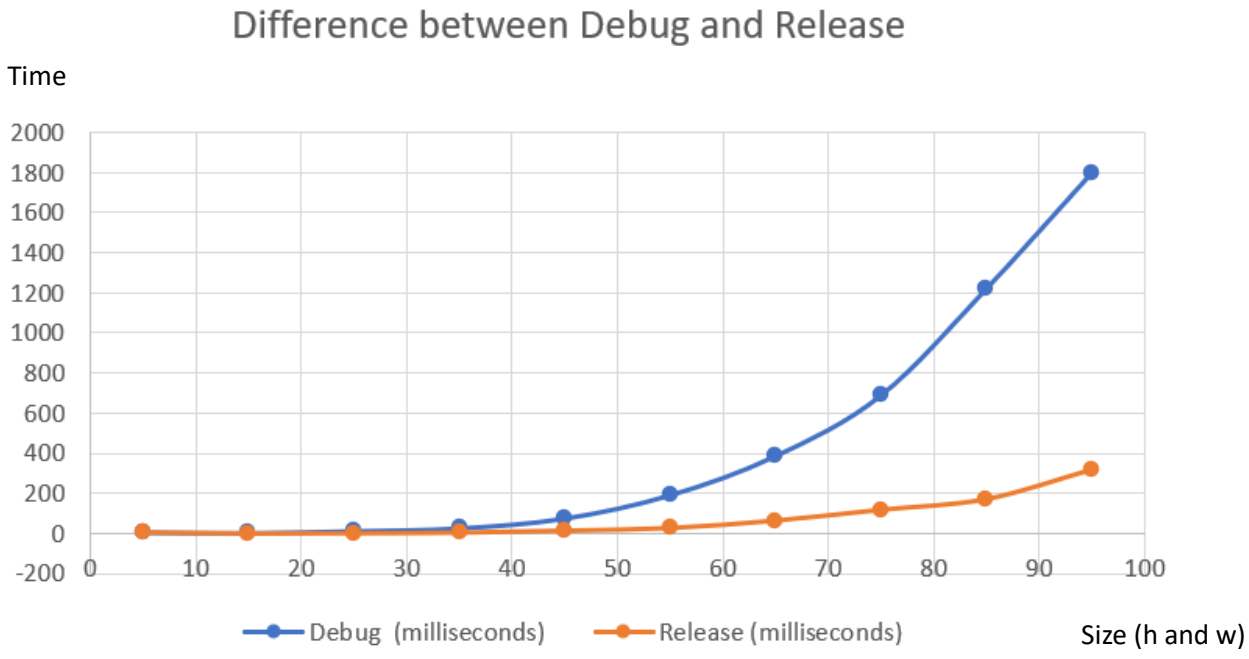
I still think that the best way to improve the hunt kill algorithm would be to remove some of the loops. I then tried to take a look at the recursive algorithm hoverer I couldn't find much to improve (it is already very fast). The only reason it could be slow would be because of the random.

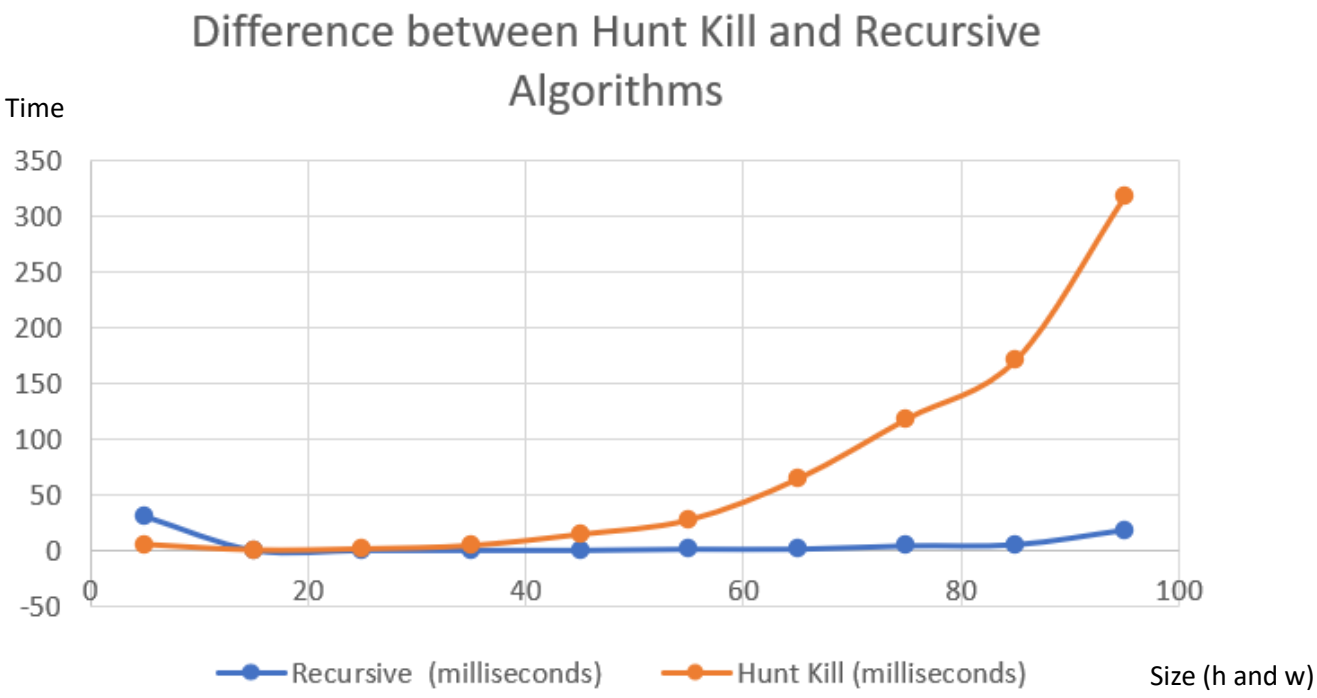
For the testing I used VMware and the device specs were

Device specifications

Device name	w10vdi-cstud-2
Full device name	w10vdi-cstud-2.ad.dawsoncollege.qc.ca
Processor	Intel(R) Xeon(R) Gold 6248 CPU @ 2.50GHz 2.49 GHz
Installed RAM	8.00 GB
Device ID	571A571B-9F4D-49FE-BCC3-1054FFA3C47D
Product ID	00329-00000-00003-AA625
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

Graphs


Difference between Debug and Release
Time
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
0
10
20
30
40
50
60
70
80
90
100
Debug (milliseconds)
Release (milliseconds)
Size (h and w)


Difference between Hunt Kill and Recursive Algorithms
Time
350
300
250
200
150
100
50
0
-50
0
20
40
60
80
100
Recursive (milliseconds)
Hunt Kill (milliseconds)
Size (h and w)