Dan Minik

Write Up

15-8 a)

When you increase m by one, you increase the number of possible choices for the next row for lowest cost by 3\*n (3 choices for each pixel wide). This then means that for the next row, another 3\*n new choices are available to choose all the way for m rows and with this new change of choices, the next row is having more possibilities as well. So for increasing m, you are increasing the possible seams by m3n which means as m grows, the possible seams grows exponentially.

b)

The algorithm for the seam with the lowest disruption value would be similar to finding the seam with the lowest energy given by

d[i,j] = d[i,j] if i = 0

d[I,j] + min(d[i-1][j-1], d[i-1][j], d[i-1][j+1]) if i > 0

for this algorithm, it would have to iterate through every pixel which would be O(n2) and for every pixel, it would have to make 3 choices based on finding the min value above it. So going down the array it would take O(3n2). Then to backtrack back up the possible seams it would take m time for the height of the array, and at each pixel, would have to make another three decisions which would be O(3m) so T(n) = O(3n2)+ O(3m).

Script

../../../../Downloads/Python%20Script.pdf



