Project 3 Report by

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Use report to explain your own understanding of the formulation and algorithm.

Based on the energy map, use the Viterbi Algorithm to find the lowest energy path. We only need to consider connected pixels, which is the surrounding eight pixels for every pixel. As we are searching from top to bottom, we just need to consider bottom left, bottom and bottom right pixel as next potential pixel and ignore the rest.

The total energy for a seam is calculated as a sum of log for each individual pixel energy. As some of the pixel energy can be 0, we handle it by treating is as log(1 - e). We do not want pixel with energy 0 causes the seam energy to be extremely small, for example a seam with multiple energy 1 could be a better seam to remove than a seam with only one energy 0.

Besides we consider not removing n pixels from the left and right of the image. We name it as padding in the code. The reason is that left most and right most pixel has only 2 pixels above it instead of 3. Giving a padding of 1, make all the pixel has equal 3 pixels above.

Output image without padding

Output image with padding = 1

Output image with padding = 3