There are a lot of repetitive features in the two images, and all of their descriptors will look similar. To find unique, distinctive feature matches, consider the following strategy: for each descriptor a in image 1, find the two nearest neighbors in image 2. Call these b and c, and let their distances from a be distance(a, b) and distance(a, c). If distance(a, b) is much smaller than distance(a, c), then b is a much better match than even the second closest feature. Thresholding using this test will tend to get rid of features with multiple possible matches. To make this concrete, we’ll define our new distance function between a and b as the ratio of the distances to the two nearest neighbors. distance(a, b) distance(a, c).

We’ll call this the ratio distance.