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(a) **What is the dominant local direction of the keypoint?**

The dominant local direction of a SIFT keypoint is determined by the peak of the orientation histogram. With p(**θ**) = 0.3, the highest peak occurs at 45° making it the dominat direction.

(b) **How many new keypoints will be created, and why? What are their orientations?**

In the SIFT algorithm, additional keypoints are created for all significant peaks in the orientation histogram that are at least 80% of the height of the global maximum (0.3 at 45° orientation). This results in a peak cutoff of 0.3*0.8=0.24. Thus the second eligable peak is at 225° at 0.25.