CS 336: Homework 1

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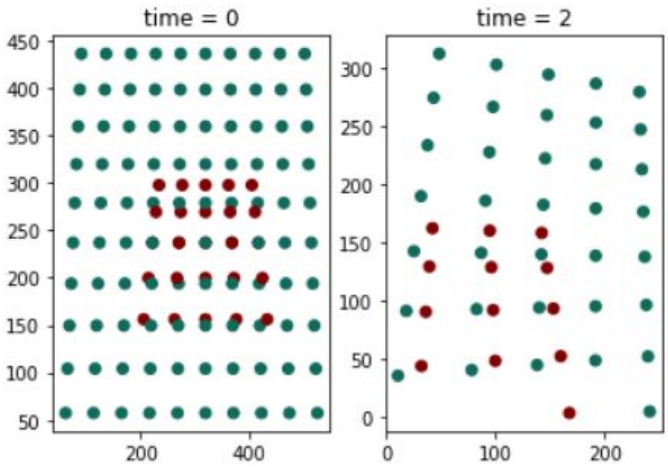
1. **Q1.G**



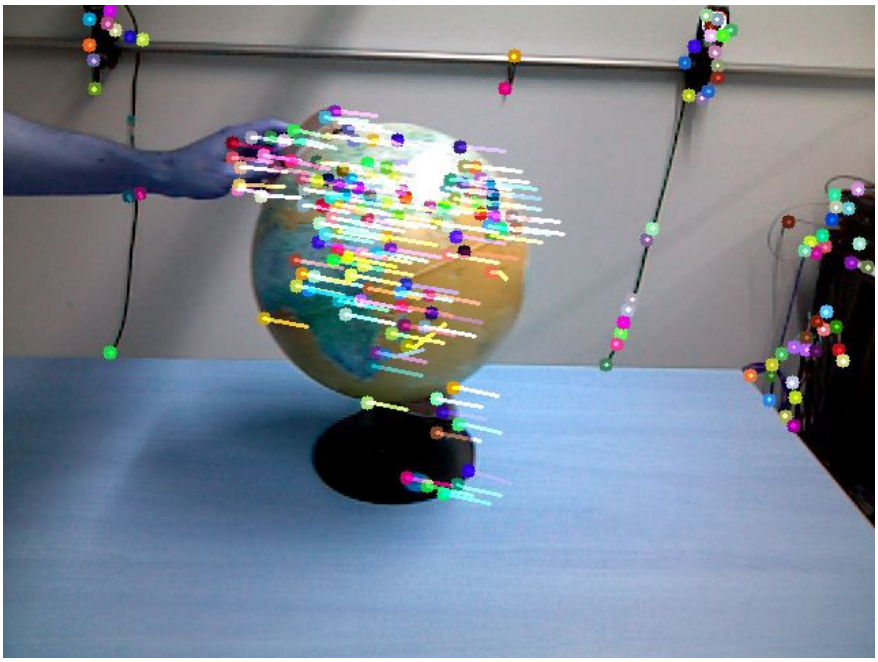
2. **What is the lowest quality level of the features detected in the first frame?**
   If we make the quality level any greater than **0.033**, then it will detect less than 200 features.

3. **Explain the differences observed. Is it always better a larger or a smaller value? What is the trade-off?**
   No, one or the other is not *always* better. There is a trade-off between robustness and accuracy. If you care more about tracking accuracy then a small integration window is preferable in order not to smooth out details on the image. However, if you want your tracker to be very robust (for instance, be able to handle large motions or changes in lighting) then it is better to choose a large window value.

   In the images above, we can see that for the 15x15 window size the algorithm provides more accurate results. The cords on the wall, for example, are inaccurately reported to have moved for the 75x75 window size. However, in the 15x15 there are some strange lines corresponding to mistracked points on the globe due to the smaller window size.

4. **Provide a visualization of the flow for block sizes 15x15 and 75x75:**

15 × 15



75 × 75