| **Rubric** | **How I addressed it** |
|---|---|
| MP.1 Data Buffer Optimization | Created a ‘Queue-like’ data structure where image data is pushed into the back of the vector. Whenever the overall size is 3 or above, the front element of the vector is removed. |
| MP.2 Keypoint Detection | Implemented all necessary Keypoint Detection Detectors in matching2D_student.cpp. |
| MP.3 Keypoint Removal | Implemented keypoint removal by checking through each keypoint if they are within the Rect element representing the bounding box of the preceding vehicle. If not, they are removed from the keypoint vector. |
| MP.4 Keypoint Descriptors | Implemented all necessary Keypoint Descriptors in matching2D_student.cpp. |
| MP.5 Descriptor Matching | Implemented FLANN and k-nearest neighbour approaches in matching2D_student.cpp. |
| MP.6 Descriptor Distance Ratio | Implemented in matching2D_student.cpp. |
| MP.7 Performance Evaluation 1 | Look at the Spreadsheet for a summary of data. |
| MP.8 Performance Evaluation 2 | Look at the Spreadsheet for a summary of data. |
| MP.9 Performance Evaluation 3 | Look at the Spreadsheet for a summary of data.<br><br>Top 3 recommendations:<br>1) **SHI-TOMASI Detector (w/ BRIEF Descriptor)**<br>a) From the picture snippet of the keypoints detected, there were many keypoints that lied on the rear of the vehicle rather than outside the vehicle (Esp carplate). The points are spreaded out most uniformly compared to the other Detectors, allowing for more accurate distance ratio and Time To Collision calculations.<br>b) Very fast in performance<br>2) **BRISK Detector (w/ BRIEF Descriptor)**<br>a) Most number of keypoints detected<br>b) Very fast in performance<br>3) **SIFT Detector (w/ BRIEF Descriptor)**<br>a) Rather uniform spread of points on the rear of the preceding vehicle.<br>b) Very fast in performance |