ENGN 1610/2605 Image Understanding

Lab #3 Feature Detection

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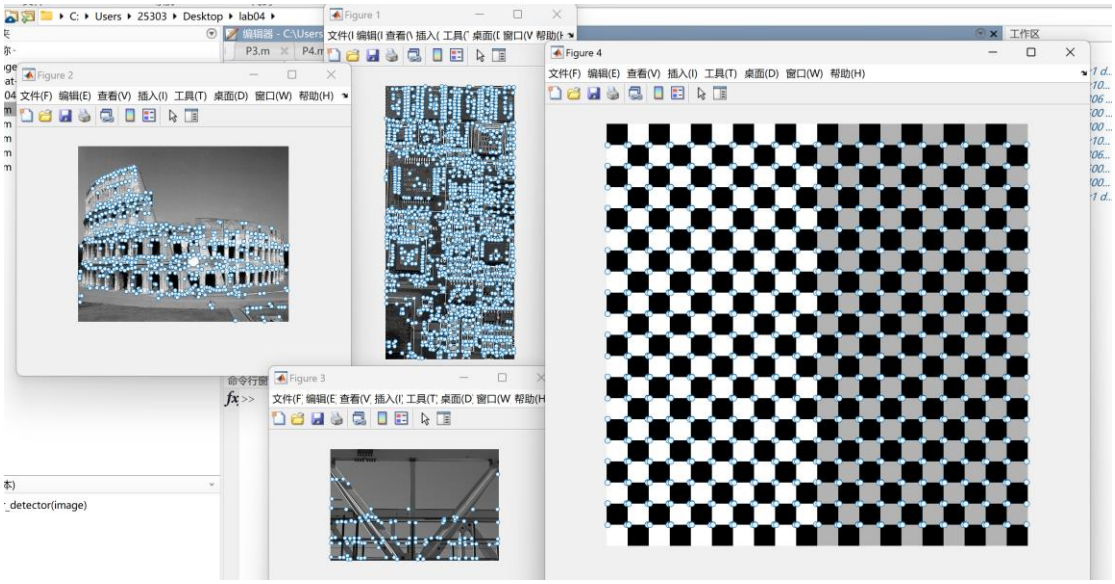
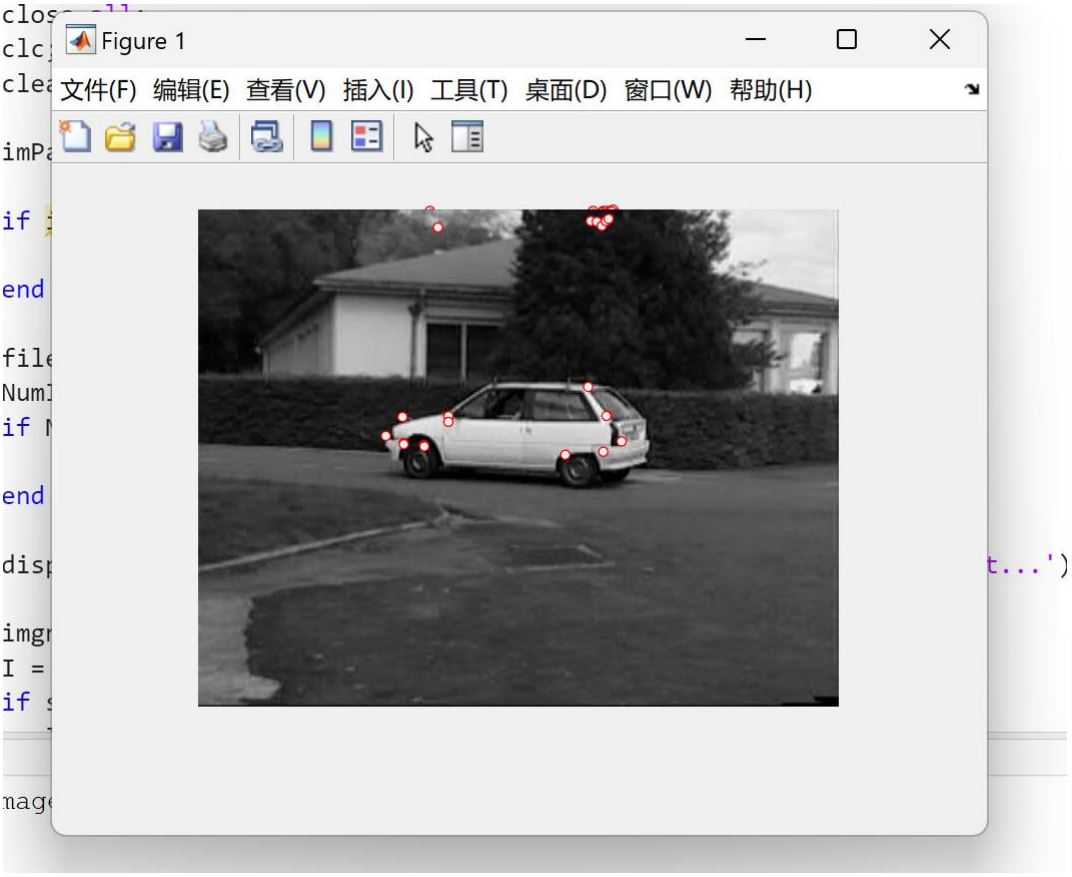
Problem 1. Implement a Corner Detection Algorithm

The code for this result is in "P1.m" file.



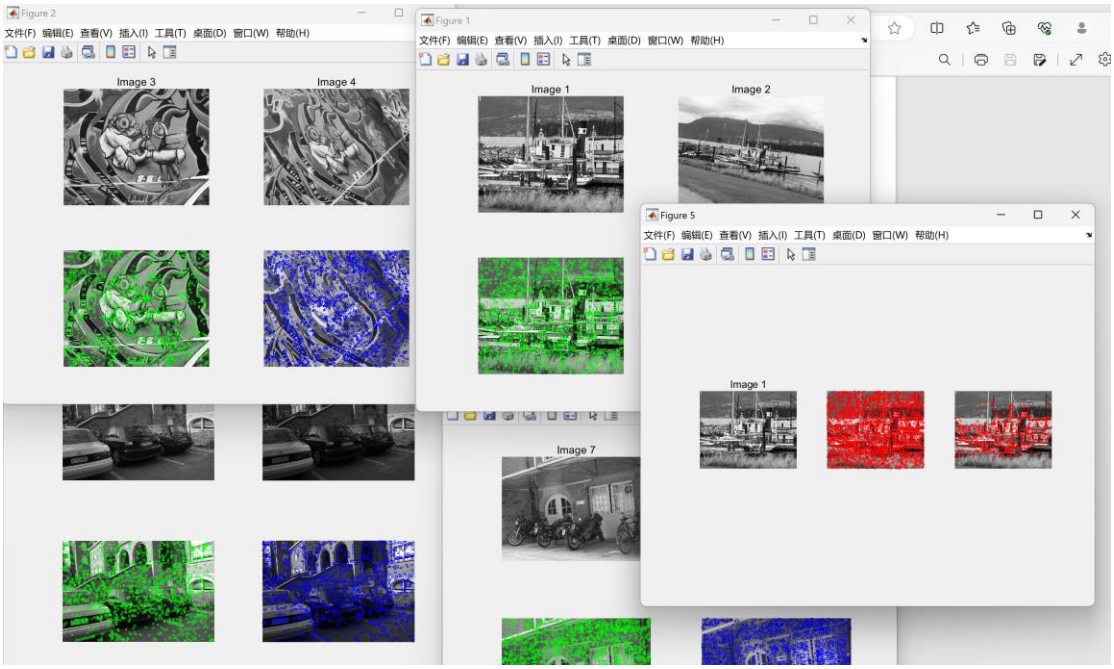
Problem 2. Application of Corners: KLT Tracker

The code for this result is in "P2.m" file.



Problem 3. Use VLFeat to Extract SIFT Features

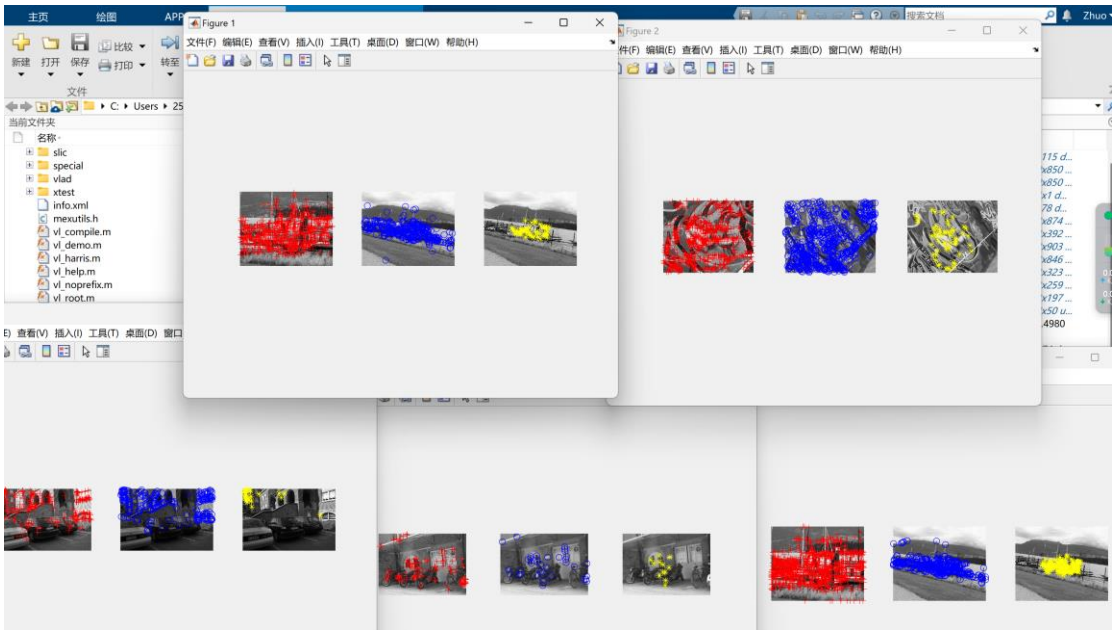
The code for this result is in "P3.m" file.



Problem 4. How good are the features? Also report the repeatability

rate of SIFT and corners. Which one is better than the other?

The code for this result is in "P4.m" file.

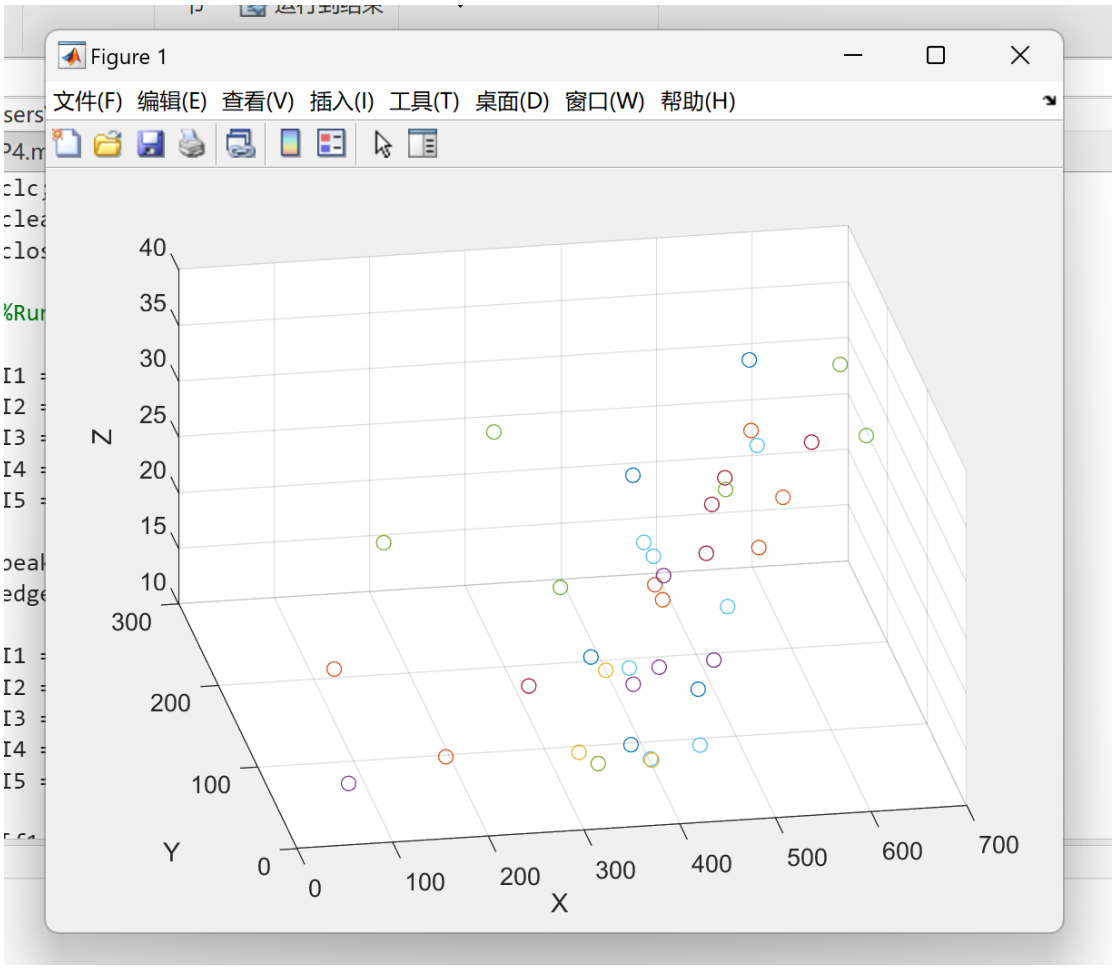


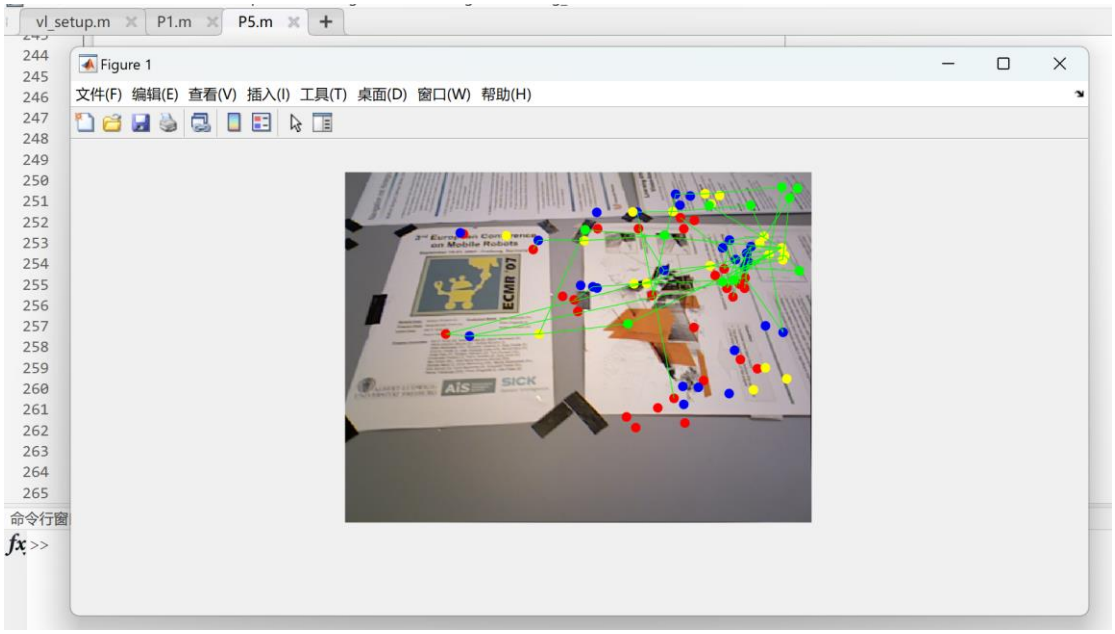
The repeatability rate of conners detection is better. Its score on the bottom row is significantly smaller than the SIFT score on the first row, so it is better.

```
命令行窗口
    13.2424

    10.3333

     9.4118

    10.3889

     6.2640

fx >>
```

Problem 5. Track features across a video sequence

The code for this result is in "P5.m" file.





Which feature is easier to survive from all five images?

Features with less displacement are more likely to survive.

Which feature generates more feature tracks?

With the camera moving towards features more displacement are generated.

Can you tell how the camera is moving based on the feature tracks?

Depending on the trajectory, move left, move up and down, then move left.