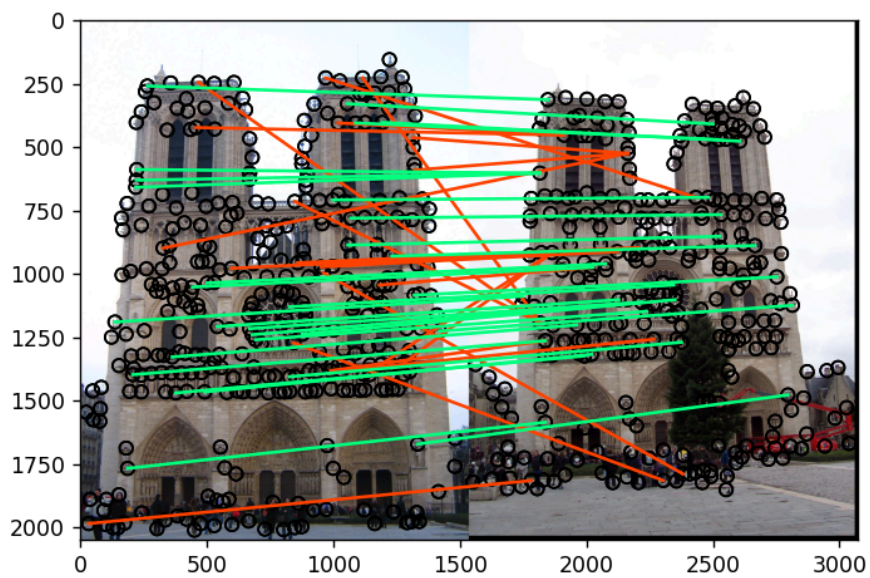
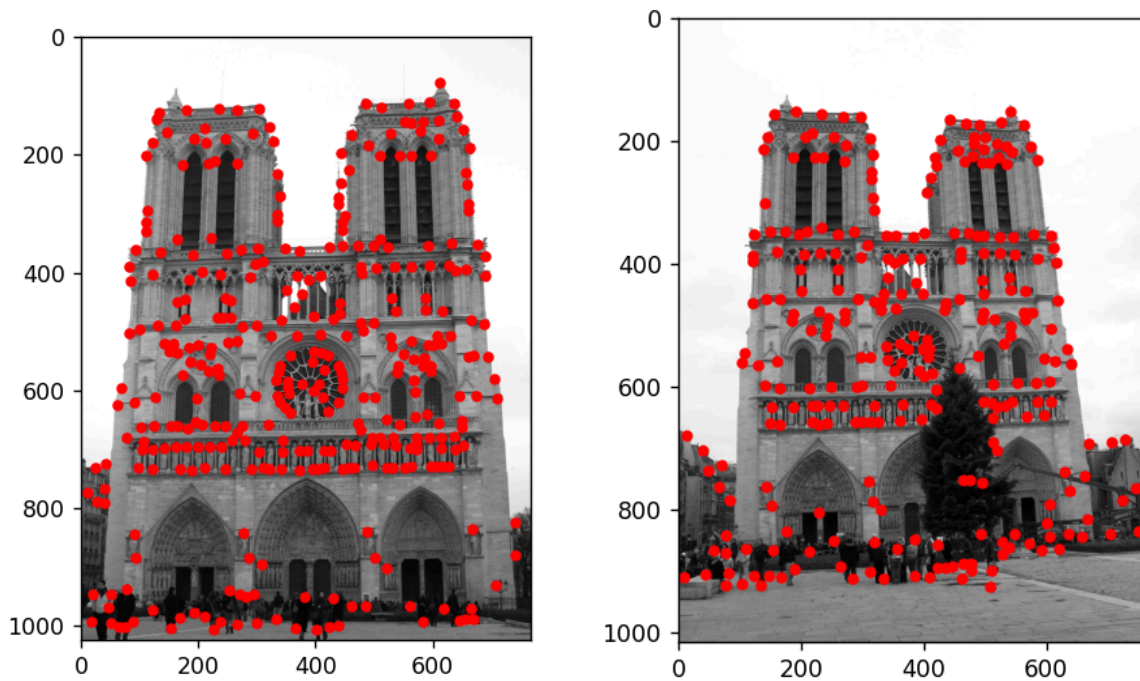


notre_dame:



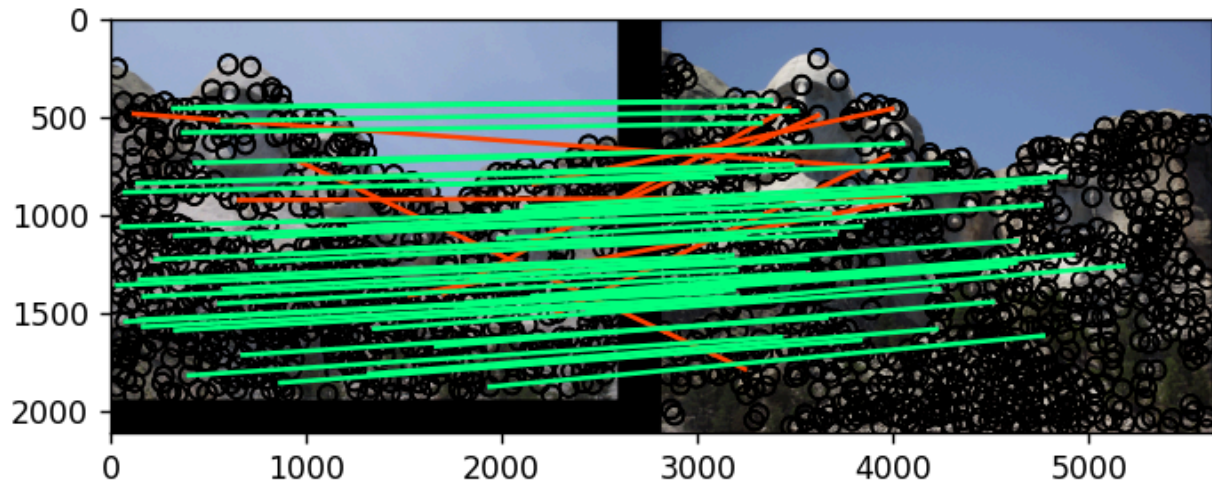
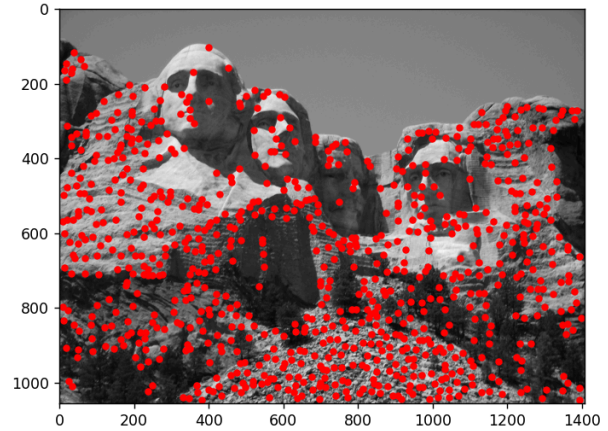
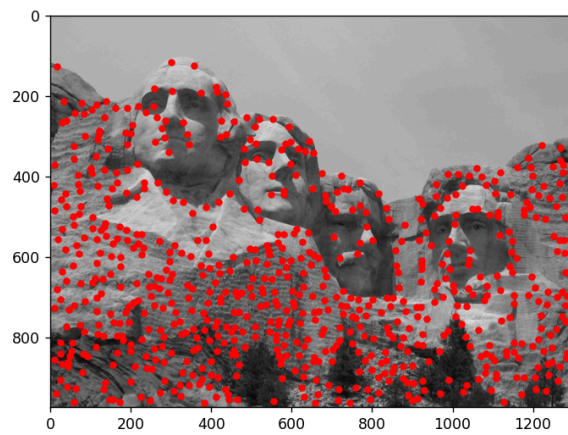
Matches: 248

Accuracy on 50 most confident: 58%

Accuracy on 100 most confident: 36%

Accuracy on all matches: 22%

mt_rushmore:



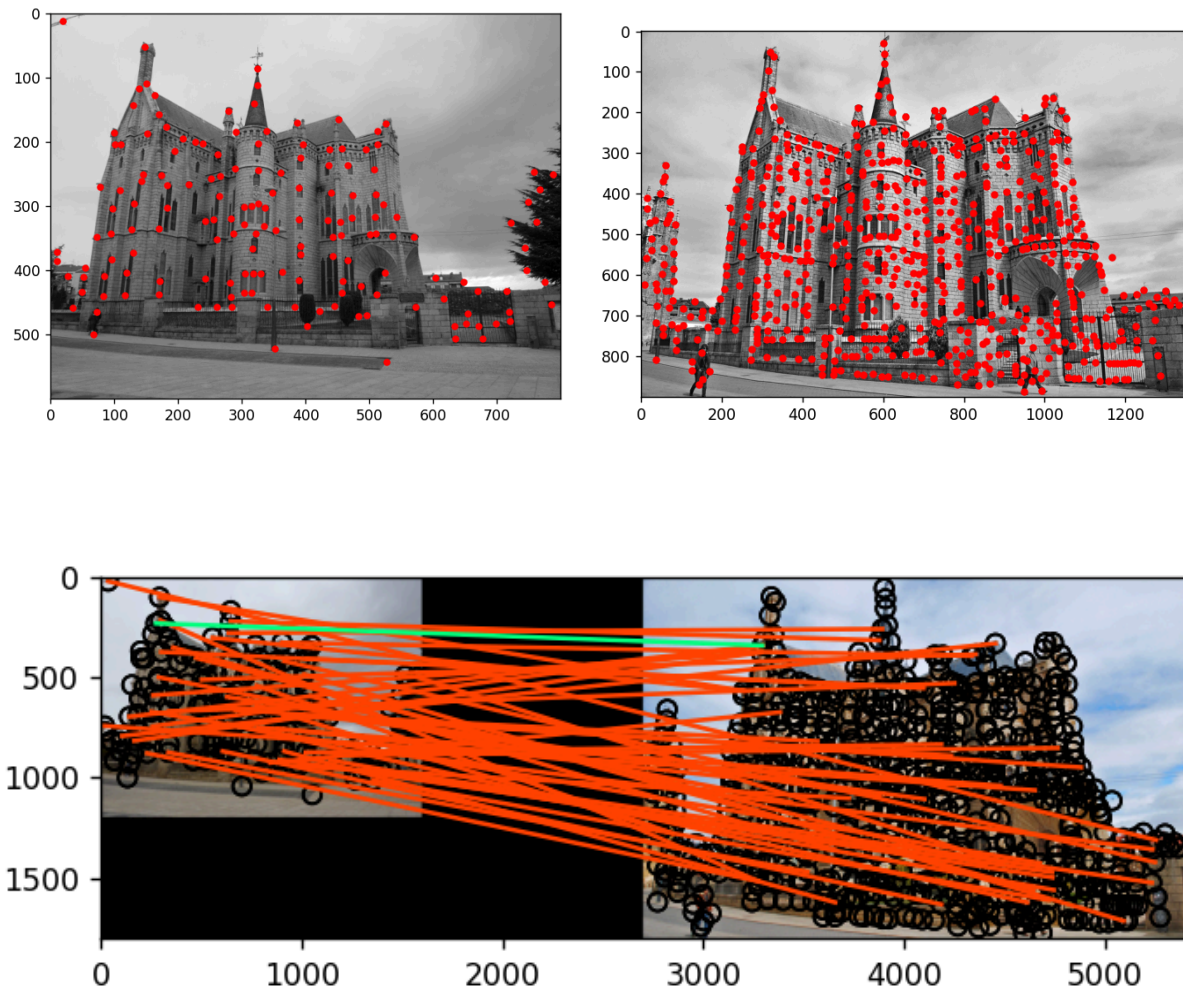
Matches: 477

Accuracy on 50 most confident: 84%

Accuracy on 100 most confident: 68%

Accuracy on all matches: 21%

e_guadi:



Matches: 113

Accuracy on 50 most confident: 2%

Accuracy on 100 most confident: 2%

Accuracy on all matches: 1%

Interest Point Detection: I implemented a multi scale Harris corner detector to identify interest points across different scales. This approach aimed to enhance the robustness of our detection process to scale changes between image pairs. I applied Gaussian filtering to smooth the images before calculating gradients, and utilized non-maximum suppression to select prominent corners.

Feature Description: For each detected interest point, I calculated descriptors using a histogram of gradients within a 4x4 grid surrounding the point, divided into 8 orientation bins. This setup was inspired by the SIFT descriptor but simplified for this project. Each descriptor was normalized to ensure invariance to changes in illumination.

Feature Matching: I employed the Nearest Neighbor Distance Ratio (NNDR) test with a dynamically determined threshold based on the percentile of ratio values to match features between image pairs. This method helped in filtering out ambiguous matches, improving the overall quality of the matches.