

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 12.6153            | 1.9208              |
| 1                               | 95              | 12.8               | 1.67198             |
| 2                               | 88              | 11.5961            | 1.8599              |
| 3                               | 80              | 11.6606            | 1.71547             |
| 4                               | 90              | 12.8584            | 1.72203             |
| 5                               | 82              | 13.8577            | 1.79794             |
| 6                               | 79              | 13.5902            | 1.58234             |
| 7                               | 85              | 14.9119            | 1.66489             |
| 8                               | 86              | 14.2437            | 1.95602             |
| 9                               | 82              | 12.5735            | 1.58164             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | SHITOMASI       |                    |                     |
| Avg. no. of matched keypoints   | 85              |                    |                     |
| Avg. detector processing time   | 13.1 ms         |                    |                     |
| Avg. descriptor processing time | 1.7 ms          |                    |                     |
| Total Processing time           | 14.8 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 13.678             | 0.632182            |
| 1                               | 12              | 11.9247            | 0.865123            |
| 2                               | 10              | 10.7662            | 0.8476              |
| 3                               | 14              | 13.2318            | 1.05808             |
| 4                               | 15              | 11.8924            | 0.978079            |
| 5                               | 16              | 22.3854            | 1.1162              |
| 6                               | 16              | 13.3705            | 0.873825            |
| 7                               | 15              | 12.8885            | 1.26628             |
| 8                               | 23              | 12.8289            | 0.998539            |
| 9                               | 21              | 15.2229            | 1.57381             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | HARRIS          |                    |                     |
| Avg. no. of matched keypoints   | 16              |                    |                     |
| Avg. detector processing time   | 13.8 ms         |                    |                     |
| Avg. descriptor processing time | 1.0 ms          |                    |                     |
| Total Processing time           | 14.8 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 96.8696            | 1.37294             |
| 1                               | 64              | 70.9316            | 1.31634             |
| 2                               | 66              | 71.5396            | 1.24276             |
| 3                               | 62              | 70.3936            | 1.42076             |
| 4                               | 66              | 72.6445            | 1.32037             |
| 5                               | 59              | 76.1403            | 1.73461             |
| 6                               | 64              | 71.8265            | 1.30553             |
| 7                               | 64              | 73.9046            | 1.40429             |
| 8                               | 67              | 75.8402            | 1.49237             |
| 9                               | 80              | 72.6385            | 1.58168             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | SIFT            |                    |                     |
| Avg. no. of matched keypoints   | 66              |                    |                     |
| Avg. detector processing time   | 75.3 ms         |                    |                     |
| Avg. descriptor processing time | 1.4 ms          |                    |                     |
| Total Processing time           | 76.7 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 1.05255            | 2.65689             |
| 1                               | 97              | 0.996916           | 2.02336             |
| 2                               | 104             | 0.779125           | 1.6058              |
| 3                               | 101             | 0.931433           | 1.64785             |
| 4                               | 98              | 0.938912           | 1.57574             |
| 5                               | 85              | 0.944519           | 1.601               |
| 6                               | 107             | 0.914633           | 1.50504             |
| 7                               | 107             | 1.13238            | 1.5057              |
| 8                               | 100             | 0.95965            | 1.81146             |
| 9                               | 100             | 0.840733           | 1.44523             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | FAST            |                    |                     |
| Avg. no. of matched keypoints   | 100             |                    |                     |
| Avg. detector processing time   | 0.9 ms          |                    |                     |
| Avg. descriptor processing time | 1.7 ms          |                    |                     |
| Total Processing time           | 2.7 ms          |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 62.4441            | 3.0282              |
| 1                               | 171             | 61.2567            | 2.84061             |
| 2                               | 176             | 61.2271            | 2.6214              |
| 3                               | 157             | 59.941             | 2.9583              |
| 4                               | 176             | 63.8209            | 3.02758             |
| 5                               | 174             | 62.1244            | 2.96607             |
| 6                               | 188             | 62.2025            | 2.69429             |
| 7                               | 173             | 60.6973            | 2.46581             |
| 8                               | 171             | 61.5095            | 2.6058              |
| 9                               | 184             | 61.4646            | 2.56228             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | BRISK           |                    |                     |
| Avg. no. of matched keypoints   | 174             |                    |                     |
| Avg. detector processing time   | 61.7 ms         |                    |                     |
| Avg. descriptor processing time | 2.8 ms          |                    |                     |
| Total Processing time           | 64.4 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 9.38065            | 1.60442             |
| 1                               | 73              | 8.39287            | 1.42061             |
| 2                               | 74              | 6.91922            | 1.18802             |
| 3                               | 79              | 7.91725            | 1.95174             |
| 4                               | 85              | 8.04115            | 1.442               |
| 5                               | 79              | 6.78822            | 1.4907              |
| 6                               | 92              | 6.97736            | 1.35182             |
| 7                               | 90              | 6.7647             | 1.41775             |
| 8                               | 88              | 7.66051            | 1.34304             |
| 9                               | 91              | 7.12374            | 1.35973             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | ORB             |                    |                     |
| Avg. no. of matched keypoints   | 83              |                    |                     |
| Avg. detector processing time   | 7.6 ms          |                    |                     |
| Avg. descriptor processing time | 1.5 ms          |                    |                     |
| Total Processing time           | 9.1 ms          |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 68.7885            | 1.62195             |
| 1                               | 137             | 62.223             | 1.4986              |
| 2                               | 125             | 60.8541            | 1.54668             |
| 3                               | 129             | 56.9624            | 1.6778              |
| 4                               | 129             | 60.9659            | 1.83839             |
| 5                               | 131             | 58.4095            | 1.60979             |
| 6                               | 132             | 60.7943            | 1.8409              |
| 7                               | 142             | 60.7558            | 1.99295             |
| 8                               | 146             | 64.2173            | 2.0191              |
| 9                               | 144             | 62.2342            | 2.38912             |
| Descriptor                      | BRISK           |                    |                     |
| Detector                        | AKAZE           |                    |                     |
| Avg. no. of matched keypoints   | 135             |                    |                     |
| Avg. detector processing time   | 61.6 ms         |                    |                     |
| Avg. descriptor processing time | 1.8 ms          |                    |                     |
| Total Processing time           | 63.4 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 13.3779            | 0.978221            |
| 1                               | 115             | 12.5359            | 0.942629            |
| 2                               | 111             | 11.0867            | 0.97732             |
| 3                               | 104             | 11.0512            | 1.28269             |
| 4                               | 101             | 11.7229            | 1.38724             |
| 5                               | 102             | 11.9222            | 0.93392             |
| 6                               | 102             | 12.9986            | 0.956938            |
| 7                               | 100             | 14.725             | 0.949026            |
| 8                               | 109             | 12.3814            | 1.06449             |
| 9                               | 100             | 12.3879            | 0.912011            |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | SHITOMASI       |                    |                     |
| Avg. no. of matched keypoints   | 105             |                    |                     |
| Avg. detector processing time   | 12.4 ms         |                    |                     |
| Avg. descriptor processing time | 1.0 ms          |                    |                     |
| Total Processing time           | 13.5 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 96.1104            | 0.48387             |
| 1                               | 86              | 68.3905            | 0.492198            |
| 2                               | 78              | 68.0324            | 0.63344             |
| 3                               | 76              | 85.5138            | 0.471873            |
| 4                               | 85              | 77.429             | 0.597289            |
| 5                               | 69              | 71.3784            | 0.546554            |
| 6                               | 74              | 81.2137            | 0.494364            |
| 7                               | 76              | 72.1088            | 0.601012            |
| 8                               | 70              | 69.4657            | 0.489618            |
| 9                               | 88              | 67.1901            | 0.470905            |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | SIFT            |                    |                     |
| Avg. no. of matched keypoints   | 78              |                    |                     |
| Avg. detector processing time   | 75.7 ms         |                    |                     |
| Avg. descriptor processing time | 0.5 ms          |                    |                     |
| Total Processing time           | 76.2 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 65.6582            | 1.32903             |
| 1                               | 178             | 60.9644            | 0.779234            |
| 2                               | 205             | 59.1918            | 0.779312            |
| 3                               | 185             | 59.2484            | 0.946595            |
| 4                               | 179             | 59.8342            | 0.924624            |
| 5                               | 183             | 59.4722            | 0.744443            |
| 6                               | 195             | 59.8233            | 0.80902             |
| 7                               | 207             | 58.8538            | 1.37927             |
| 8                               | 189             | 59.3095            | 1.13043             |
| 9                               | 183             | 58.9624            | 0.814418            |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | BRISK           |                    |                     |
| Avg. no. of matched keypoints   | 189             |                    |                     |
| Avg. detector processing time   | 60.1 ms         |                    |                     |
| Avg. descriptor processing time | 1.0 ms          |                    |                     |
| Total Processing time           | 61.1 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 75.7223            | 0.557097            |
| 1                               | 141             | 54.3221            | 0.515596            |
| 2                               | 134             | 56.0178            | 0.562727            |
| 3                               | 131             | 57.7223            | 0.585847            |
| 4                               | 130             | 61.8495            | 0.62336             |
| 5                               | 134             | 60.4555            | 0.571977            |
| 6                               | 146             | 55.1744            | 0.678551            |
| 7                               | 150             | 60.8346            | 1.19006             |
| 8                               | 148             | 64.9238            | 0.622895            |
| 9                               | 152             | 56.1263            | 0.588587            |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | AKAZE           |                    |                     |
| Avg. no. of matched keypoints   | 141             |                    |                     |
| Avg. detector processing time   | 60.3 ms         |                    |                     |
| Avg. descriptor processing time | 0.6 ms          |                    |                     |
| Total Processing time           | 61.0 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 12.2906            | 0.176095            |
| 1                               | 14              | 10.9755            | 0.773874            |
| 2                               | 11              | 10.5988            | 0.808088            |
| 3                               | 15              | 11.6535            | 0.717047            |
| 4                               | 20              | 12.0116            | 0.808045            |
| 5                               | 24              | 20.1025            | 1.24001             |
| 6                               | 26              | 10.7849            | 0.6851              |
| 7                               | 16              | 15.0027            | 0.797962            |
| 8                               | 24              | 11.4478            | 0.908185            |
| 9                               | 23              | 16.9462            | 0.780208            |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | HARRIS          |                    |                     |
| Avg. no. of matched keypoints   | 19              |                    |                     |
| Avg. detector processing time   | 13.2 ms         |                    |                     |
| Avg. descriptor processing time | 0.8 ms          |                    |                     |
| Total Processing time           | 14.0 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 1.28321            | 1.18273             |
| 1                               | 119             | 0.988207           | 1.25294             |
| 2                               | 130             | 0.923213           | 0.945223            |
| 3                               | 118             | 1.17045            | 0.711699            |
| 4                               | 126             | 0.639707           | 0.854656            |
| 5                               | 108             | 0.941536           | 0.508102            |
| 6                               | 123             | 0.94058            | 0.512229            |
| 7                               | 131             | 0.935232           | 0.540563            |
| 8                               | 125             | 0.88631            | 0.73862             |
| 9                               | 119             | 0.914157           | 0.59192             |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | FAST            |                    |                     |
| Avg. no. of matched keypoints   | 122             |                    |                     |
| Avg. detector processing time   | 1.0 ms          |                    |                     |
| Avg. descriptor processing time | 0.8 ms          |                    |                     |
| Total Processing time           | 1.7 ms          |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 8.55666            | 0.830601            |
| 1                               | 49              | 8.1059             | 0.409867            |
| 2                               | 43              | 7.73582            | 0.306742            |
| 3                               | 45              | 7.6401             | 0.520739            |
| 4                               | 59              | 6.71751            | 0.331625            |
| 5                               | 53              | 8.50452            | 0.593908            |
| 6                               | 78              | 7.00504            | 0.364628            |
| 7                               | 68              | 7.1463             | 0.812721            |
| 8                               | 84              | 7.04252            | 0.411468            |
| 9                               | 66              | 6.97602            | 0.389419            |
| Descriptor                      | BRIEF           |                    |                     |
| Detector                        | ORB             |                    |                     |
| Avg. no. of matched keypoints   | 61              |                    |                     |
| Avg. detector processing time   | 7.5 ms          |                    |                     |
| Avg. descriptor processing time | 0.5 ms          |                    |                     |
| Total Processing time           | 8.0 ms          |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 13.5597            | 2.48155             |
| 1                               | 104             | 12.7036            | 2.5108              |
| 2                               | 103             | 12.7315            | 2.80115             |
| 3                               | 100             | 12.6575            | 2.4816              |
| 4                               | 102             | 14.1897            | 2.44561             |
| 5                               | 103             | 13.8403            | 2.45501             |
| 6                               | 98              | 13.8912            | 2.48766             |
| 7                               | 98              | 13.159             | 2.49266             |
| 8                               | 102             | 13.2543            | 2.49246             |
| 9                               | 97              | 13.1741            | 2.52984             |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | SHITOMASI       |                    |                     |
| Avg. no. of matched keypoints   | 101             |                    |                     |
| Avg. detector processing time   | 13.3 ms         |                    |                     |
| Avg. descriptor processing time | 2.5 ms          |                    |                     |
| Total Processing time           | 15.8 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | SIFT            |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 60.9661            | 10.9102             |
| 1                               | 160             | 62.0765            | 9.64833             |
| 2                               | 171             | 61.1051            | 9.54465             |
| 3                               | 157             | 59.2647            | 10.2311             |
| 4                               | 170             | 62.4546            | 9.81622             |
| 5                               | 154             | 61.08              | 8.72764             |
| 6                               | 180             | 61.8458            | 9.59637             |
| 7                               | 171             | 59.0155            | 9.1019              |
| 8                               | 175             | 59.885             | 11.3865             |
| 9                               | 172             | 68.7305            | 9.92108             |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | BRISK           |                    |                     |
| Avg. no. of matched keypoints   | 168             |                    |                     |
| Avg. detector processing time   | 61.6 ms         |                    |                     |
| Avg. descriptor processing time | 9.9 ms          |                    |                     |
| Total Processing time           | 71.5 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 66.061             | 6.41344             |
| 1                               | 130             | 56.2185            | 6.44515             |
| 2                               | 129             | 55.9346            | 6.20956             |
| 3                               | 128             | 56.9772            | 6.37785             |
| 4                               | 115             | 59.9884            | 7.16374             |
| 5                               | 132             | 63.7758            | 6.47005             |
| 6                               | 132             | 62.6139            | 6.74482             |
| 7                               | 137             | 62.4994            | 6.95334             |
| 8                               | 137             | 74.1924            | 6.61738             |
| 9                               | 146             | 66.2299            | 6.61924             |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | AKAZE           |                    |                     |
| Avg. no. of matched keypoints   | 132             |                    |                     |
| Avg. detector processing time   | 62.4 ms         |                    |                     |
| Avg. descriptor processing time | 6.6 ms          |                    |                     |
| Total Processing time           | 69.1 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 12.6007            | 2.23331             |
| 1                               | 12              | 11.5551            | 2.32726             |
| 2                               | 13              | 13.1068            | 2.35922             |
| 3                               | 16              | 11.2817            | 2.33139             |
| 4                               | 18              | 12.7762            | 2.35312             |
| 5                               | 24              | 21.0361            | 2.45605             |
| 6                               | 18              | 12.0316            | 2.97036             |
| 7                               | 15              | 12.9245            | 2.35329             |
| 8                               | 24              | 14.822             | 2.43133             |
| 9                               | 20              | 15.9481            | 2.44323             |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | HARRIS          |                    |                     |
| Avg. no. of matched keypoints   | 18              |                    |                     |
| Avg. detector processing time   | 13.8 ms         |                    |                     |
| Avg. descriptor processing time | 2.4 ms          |                    |                     |
| Total Processing time           | 16.2 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 0.989142           | 2.61152             |
| 1                               | 122             | 1.01931            | 2.52834             |
| 2                               | 122             | 0.961502           | 2.42246             |
| 3                               | 115             | 0.995603           | 2.37021             |
| 4                               | 129             | 0.98251            | 2.83437             |
| 5                               | 107             | 1.10034            | 2.70422             |
| 6                               | 120             | 0.953679           | 2.41608             |
| 7                               | 126             | 1.21463            | 2.37606             |
| 8                               | 122             | 1.17217            | 2.40498             |
| 9                               | 118             | 0.944325           | 2.37302             |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | FAST            |                    |                     |
| Avg. no. of matched keypoints   | 120             |                    |                     |
| Avg. detector processing time   | 1.0 ms          |                    |                     |
| Avg. descriptor processing time | 2.5 ms          |                    |                     |
| Total Processing time           | 3.5 ms          |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 7.43544            | 9.8351              |
| 1                               | 65              | 6.70306            | 9.6099              |
| 2                               | 69              | 7.50304            | 9.27838             |
| 3                               | 71              | 7.68523            | 9.83372             |
| 4                               | 85              | 6.84912            | 10.1914             |
| 5                               | 91              | 7.36065            | 9.48564             |
| 6                               | 101             | 7.64653            | 9.68367             |
| 7                               | 95              | 8.5156             | 10.0564             |
| 8                               | 93              | 7.37017            | 10.5524             |
| 9                               | 91              | 7.60886            | 9.43074             |
| Descriptor                      | ORB             |                    |                     |
| Detector                        | ORB             |                    |                     |
| Avg. no. of matched keypoints   | 85              |                    |                     |
| Avg. detector processing time   | 7.5 ms          |                    |                     |
| Avg. descriptor processing time | 9.8 ms          |                    |                     |
| Total Processing time           | 17.3 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 12.9362            | 24.2606             |
| 1                               | 90              | 9.79428            | 21.5685             |
| 2                               | 88              | 11.1909            | 21.6115             |
| 3                               | 87              | 8.98186            | 22.1958             |
| 4                               | 89              | 9.81853            | 21.9865             |
| 5                               | 83              | 9.71779            | 22.3877             |
| 6                               | 78              | 7.87641            | 22.6161             |
| 7                               | 81              | 7.59477            | 21.994              |
| 8                               | 86              | 10.2595            | 22.5224             |
| 9                               | 84              | 8.16466            | 22.5589             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | SHITOMASI       |                    |                     |
| Avg. no. of matched keypoints   | 85              |                    |                     |
| Avg. detector processing time   | 9.6 ms          |                    |                     |
| Avg. descriptor processing time | 22.4 ms         |                    |                     |
| Total Processing time           | 32.0 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 95.7047            | 21.393              |
| 1                               | 64              | 70.6243            | 21.6378             |
| 2                               | 72              | 67.7277            | 21.3642             |
| 3                               | 65              | 71.4629            | 21.319              |
| 4                               | 66              | 72.5776            | 21.628              |
| 5                               | 63              | 70.067             | 21.5912             |
| 6                               | 58              | 74.5047            | 21.8562             |
| 7                               | 64              | 71.3682            | 22.1356             |
| 8                               | 65              | 70.476             | 21.5781             |
| 9                               | 79              | 71.542             | 22.2446             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | SIFT            |                    |                     |
| Avg. no. of matched keypoints   | 66              |                    |                     |
| Avg. detector processing time   | 73.6 ms         |                    |                     |
| Avg. descriptor processing time | 21.7 ms         |                    |                     |
| Total Processing time           | 95.3 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 61.3893            | 24.9687             |
| 1                               | 160             | 61.2124            | 24.2882             |
| 2                               | 178             | 59.5382            | 22.5515             |
| 3                               | 156             | 59.6376            | 22.2296             |
| 4                               | 173             | 61.1105            | 22.911              |
| 5                               | 160             | 60.2879            | 23.0413             |
| 6                               | 183             | 64.2998            | 22.2481             |
| 7                               | 169             | 62.649             | 22.3379             |
| 8                               | 179             | 62.9397            | 23.93               |
| 9                               | 168             | 67.4837            | 22.9226             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | BRISK           |                    |                     |
| Avg. no. of matched keypoints   | 170             |                    |                     |
| Avg. detector processing time   | 62.1 ms         |                    |                     |
| Avg. descriptor processing time | 23.1 ms         |                    |                     |
| Total Processing time           | 85.2 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 66.481             | 21.4884             |
| 1                               | 126             | 54.0439            | 21.7199             |
| 2                               | 128             | 55.4975            | 21.488              |
| 3                               | 128             | 55.4297            | 21.775              |
| 4                               | 121             | 57.8338            | 21.8802             |
| 5                               | 123             | 60.9214            | 22.5499             |
| 6                               | 132             | 56.9979            | 22.3479             |
| 7                               | 145             | 55.7139            | 21.7635             |
| 8                               | 148             | 65.051             | 21.8028             |
| 9                               | 137             | 57.965             | 22.0888             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | AKAZE           |                    |                     |
| Avg. no. of matched keypoints   | 132             |                    |                     |
| Avg. detector processing time   | 58.6 ms         |                    |                     |
| Avg. descriptor processing time | 21.9 ms         |                    |                     |
| Total Processing time           | 80.5 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 12.4095            | 23.3298             |
| 1                               | 13              | 12.4942            | 21.6646             |
| 2                               | 13              | 8.21289            | 21.1021             |
| 3                               | 15              | 8.11169            | 21.8488             |
| 4                               | 15              | 8.77611            | 21.5869             |
| 5                               | 17              | 18.42              | 21.8601             |
| 6                               | 20              | 9.81679            | 21.5566             |
| 7                               | 14              | 10.2265            | 20.8567             |
| 8                               | 21              | 9.65635            | 20.9423             |
| 9                               | 18              | 12.1559            | 21.6724             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | HARRIS          |                    |                     |
| Avg. no. of matched keypoints   | 16              |                    |                     |
| Avg. detector processing time   | 11.0 ms         |                    |                     |
| Avg. descriptor processing time | 21.6 ms         |                    |                     |
| Total Processing time           | 32.7 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 1.50547            | 24.5694             |
| 1                               | 97              | 1.03866            | 24.3766             |
| 2                               | 98              | 0.855218           | 22.1852             |
| 3                               | 94              | 0.91109            | 21.6438             |
| 4                               | 99              | 0.797822           | 21.9151             |
| 5                               | 88              | 0.924934           | 22.5956             |
| 6                               | 99              | 0.842598           | 21.7229             |
| 7                               | 104             | 0.96259            | 21.7575             |
| 8                               | 99              | 0.729476           | 21.7236             |
| 9                               | 103             | 0.91414            | 22.3991             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | FAST            |                    |                     |
| Avg. no. of matched keypoints   | 98              |                    |                     |
| Avg. detector processing time   | 0.9 ms          |                    |                     |
| Avg. descriptor processing time | 22.5 ms         |                    |                     |
| Total Processing time           | 23.4 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 9.37171            | 25.3176             |
| 1                               | 42              | 9.17751            | 24.2973             |
| 2                               | 36              | 7.07184            | 22.3229             |
| 3                               | 45              | 7.73978            | 21.5939             |
| 4                               | 47              | 7.84453            | 21.7238             |
| 5                               | 44              | 7.26446            | 21.6952             |
| 6                               | 51              | 6.96547            | 22.0097             |
| 7                               | 52              | 7.88482            | 21.6916             |
| 8                               | 49              | 7.89242            | 21.4487             |
| 9                               | 55              | 7.17907            | 22.2647             |
| Descriptor                      | FREAK           |                    |                     |
| Detector                        | ORB             |                    |                     |
| Avg. no. of matched keypoints   | 47              |                    |                     |
| Avg. detector processing time   | 7.8 ms          |                    |                     |
| Avg. descriptor processing time | 22.4 ms         |                    |                     |
| Total Processing time           | 30.3 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | SHITOMASI       |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | HARRIS          |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | SIFT            |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | FAST            |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | BRISK           |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 |                    |                     |
| 1                               |                 |                    |                     |
| 2                               |                 |                    |                     |
| 3                               |                 |                    |                     |
| 4                               |                 |                    |                     |
| 5                               |                 |                    |                     |
| 6                               |                 |                    |                     |
| 7                               |                 |                    |                     |
| 8                               |                 |                    |                     |
| 9                               |                 |                    |                     |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | ORB             |                    |                     |
| Avg. no. of matched keypoints   | #DIV/0!         |                    |                     |
| Avg. detector processing time   | #DIV/0!         |                    |                     |
| Avg. descriptor processing time | #DIV/0!         |                    |                     |
| Total Processing time           | #DIV/0!         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 68.5708            | 44.2888             |
| 1                               | 138             | 54.9879            | 51.5367             |
| 2                               | 138             | 62.5989            | 48.0657             |
| 3                               | 133             | 60.977             | 49.5828             |
| 4                               | 127             | 62.7026            | 48.4683             |
| 5                               | 129             | 59.1704            | 53.6723             |
| 6                               | 146             | 62.612             | 52.9503             |
| 7                               | 147             | 62.967             | 56.7626             |
| 8                               | 151             | 61.1211            | 52.9609             |
| 9                               | 150             | 64.1063            | 50.631              |
| Descriptor                      | AKAZE           |                    |                     |
| Detector                        | AKAZE           |                    |                     |
| Avg. no. of matched keypoints   | 140             |                    |                     |
| Avg. detector processing time   | 62.0 ms         |                    |                     |
| Avg. descriptor processing time | 50.9 ms         |                    |                     |
| Total Processing time           | 112.9 ms        |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 15.4321            | 14.291              |
| 1                               | 112             | 11.7152            | 19.4548             |
| 2                               | 109             | 15.7477            | 17.1337             |
| 3                               | 104             | 14.5615            | 14.2775             |
| 4                               | 103             | 14.259             | 14.8985             |
| 5                               | 99              | 12.3273            | 15.7954             |
| 6                               | 101             | 12.6901            | 14.4888             |
| 7                               | 96              | 15.5528            | 16.0351             |
| 8                               | 106             | 11.9681            | 14.7392             |
| 9                               | 97              | 14.6575            | 15.2154             |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | SHITOMASI       |                    |                     |
| Avg. no. of matched keypoints   | 103             |                    |                     |
| Avg. detector processing time   | 13.9 ms         |                    |                     |
| Avg. descriptor processing time | 15.6 ms         |                    |                     |
| Total Processing time           | 29.5 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 98.0889            | 50.9306             |
| 1                               | 82              | 70.3265            | 49.5822             |
| 2                               | 81              | 68.5167            | 50.2147             |
| 3                               | 85              | 69.8322            | 48.9061             |
| 4                               | 93              | 72.0198            | 50.058              |
| 5                               | 90              | 76.0154            | 54.5459             |
| 6                               | 81              | 74.7668            | 51.7384             |
| 7                               | 82              | 74.4828            | 52.0095             |
| 8                               | 102             | 72.8272            | 55.2569             |
| 9                               | 104             | 77.9433            | 51.2832             |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | SIFT            |                    |                     |
| Avg. no. of matched keypoints   | 89              |                    |                     |
| Avg. detector processing time   | 75.5 ms         |                    |                     |
| Avg. descriptor processing time | 51.5 ms         |                    |                     |
| Total Processing time           | 126.9 ms        |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 67.2343            | 23.6989             |
| 1                               | 182             | 59.9974            | 19.1595             |
| 2                               | 193             | 59.8738            | 19.2185             |
| 3                               | 169             | 61.913             | 18.9975             |
| 4                               | 183             | 63.661             | 18.8441             |
| 5                               | 171             | 60.0685            | 19.9136             |
| 6                               | 195             | 67.4228            | 22.5271             |
| 7                               | 194             | 65.598             | 24.523              |
| 8                               | 176             | 72.0929            | 21.5878             |
| 9                               | 183             | 63.8331            | 20.5549             |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | BRISK           |                    |                     |
| Avg. no. of matched keypoints   | 183             |                    |                     |
| Avg. detector processing time   | 64.2 ms         |                    |                     |
| Avg. descriptor processing time | 20.9 ms         |                    |                     |
| Total Processing time           | 85.1 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 66.9877            | 12.8019             |
| 1                               | 134             | 53.7529            | 13.5521             |
| 2                               | 134             | 59.9157            | 13.0084             |
| 3                               | 130             | 56.5979            | 14.5695             |
| 4                               | 136             | 55.489             | 13.0251             |
| 5                               | 137             | 60.7313            | 13.5216             |
| 6                               | 147             | 60.0931            | 14.2964             |
| 7                               | 147             | 58.9536            | 14.5189             |
| 8                               | 154             | 59.0157            | 13.3638             |
| 9                               | 151             | 61.5141            | 14.3891             |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | AKAZE           |                    |                     |
| Avg. no. of matched keypoints   | 141             |                    |                     |
| Avg. detector processing time   | 59.3 ms         |                    |                     |
| Avg. descriptor processing time | 13.7 ms         |                    |                     |
| Total Processing time           | 73.0 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 15.2075            | 15.3037             |
| 1                               | 14              | 13.8171            | 17.219              |
| 2                               | 11              | 12.6684            | 15.1147             |
| 3                               | 16              | 11.6247            | 14.2392             |
| 4                               | 19              | 12.9646            | 14.3114             |
| 5                               | 22              | 21.296             | 14.9617             |
| 6                               | 22              | 11.2495            | 15.5002             |
| 7                               | 13              | 12.7375            | 15.9197             |
| 8                               | 24              | 11.8591            | 15.8942             |
| 9                               | 22              | 16.0421            | 14.485              |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | HARRIS          |                    |                     |
| Avg. no. of matched keypoints   | 18              |                    |                     |
| Avg. detector processing time   | 13.9 ms         |                    |                     |
| Avg. descriptor processing time | 15.3 ms         |                    |                     |
| Total Processing time           | 29.2 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 1.03404            | 15.8883             |
| 1                               | 118             | 1.033              | 14.0065             |
| 2                               | 123             | 0.955046           | 15.2581             |
| 3                               | 110             | 0.854491           | 13.368              |
| 4                               | 119             | 0.938228           | 13.7188             |
| 5                               | 114             | 0.738283           | 16.6402             |
| 6                               | 119             | 0.954495           | 19.1121             |
| 7                               | 123             | 1.22882            | 15.0238             |
| 8                               | 117             | 0.86308            | 17.1726             |
| 9                               | 103             | 0.99109            | 17.7062             |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | FAST            |                    |                     |
| Avg. no. of matched keypoints   | 116             |                    |                     |
| Avg. detector processing time   | 1.0 ms          |                    |                     |
| Avg. descriptor processing time | 15.8 ms         |                    |                     |
| Total Processing time           | 16.7 ms         |                    |                     |

| Images                          | No. of m. kpts. | Detector P.T. (ms) | Descriptor P.T (ms) |
|---------------------------------|-----------------|--------------------|---------------------|
| 0                               |                 | 8.03581            | 30.7978             |
| 1                               | 67              | 7.84804            | 20.5416             |
| 2                               | 79              | 8.61409            | 22.3511             |
| 3                               | 78              | 6.73633            | 24.253              |
| 4                               | 79              | 7.21721            | 24.7123             |
| 5                               | 82              | 6.68805            | 21.9379             |
| 6                               | 95              | 6.88987            | 27.6072             |
| 7                               | 95              | 6.93417            | 26.1839             |
| 8                               | 94              | 6.97928            | 27.5458             |
| 9                               | 94              | 8.04255            | 24.1104             |
| Descriptor                      | SIFT            |                    |                     |
| Detector                        | ORB             |                    |                     |
| Avg. no. of matched keypoints   | 85              |                    |                     |
| Avg. detector processing time   | 7.4 ms          |                    |                     |
| Avg. descriptor processing time | 25.0 ms         |                    |                     |
| Total Processing time           | 32.4 ms         |                    |                     |