Supplementary Material for Location Recognition using Prioritized Feature Matching

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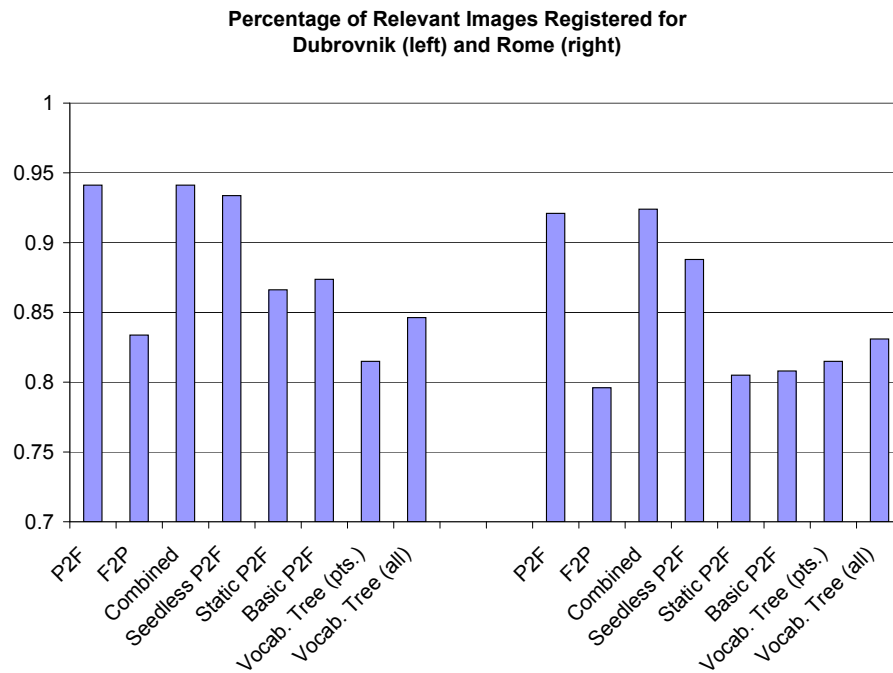Department of Computer Science, Cornell University, Ithaca, NY 14853

Percentage of Relevant Images Registered for Dubrovnik (left) and Rome (right)

Fig. 1. Registration performance in terms of the percentage of relevant test images successfully registered (out of 800 for Dubrovnik and 1000 for Rome). Higher is better. (The graph corresponds to the numbers in the "Images registered" column of Table 2 and 3, for the compressed model and the vocabulary tree.)
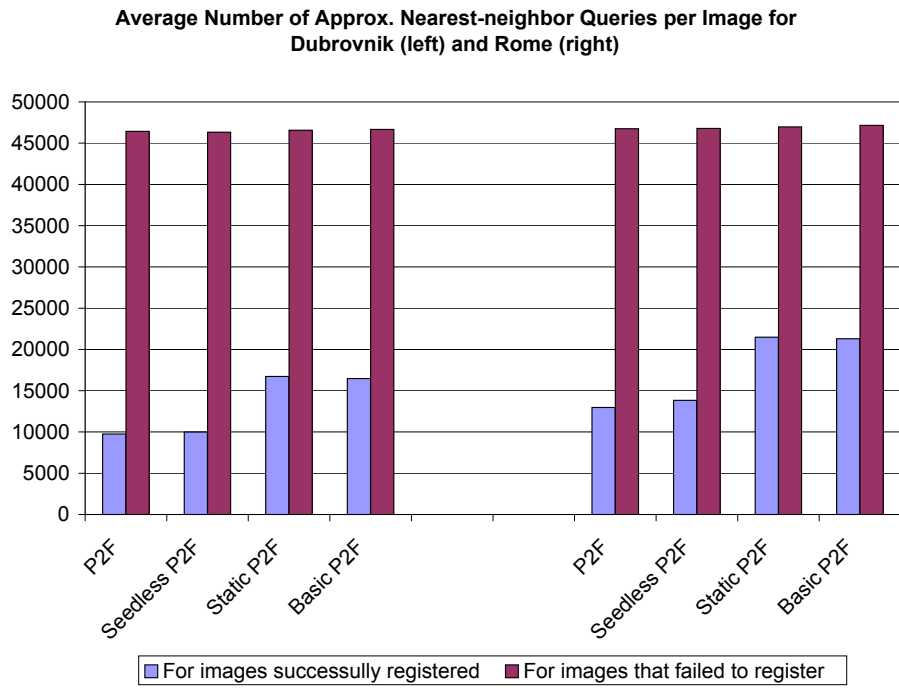
**Average Number of Approx. Nearest-neighbor Queries per Image for
Dubrovnik (left) and Rome (right)**

Fig. 2. Computational cost, in terms of the average number of approximate nearest-neighbor queries per image, for point-to-feature matching. Lower is faster. (The graph corresponds to the numbers in the "NN queries by P2F" column of Table 2 and 3, for the compressed model and the vocabulary tree.)

Fig. 3. Random sample of relevant test images in the Dubrovnik data set. Top: Images that were successfully registered (by P2K, the proposed method). Bottom: Images that failed to be registered. Those that failed to be registered tend to have uncommon locations, unusual viewpoints, and/or nighttime lighting. Negative (i.e. irrelevant) test images are from the Rome data set (none of which were falsely registered).

Fig. 4. Random sample of relevant test images in the Rome data set. Top: Images that were successfully registered. Bottom: Images that failed to be registered. Negative (i.e. irrelevant) test images are from the Dubrovnik data set (none of which were falsely registered).
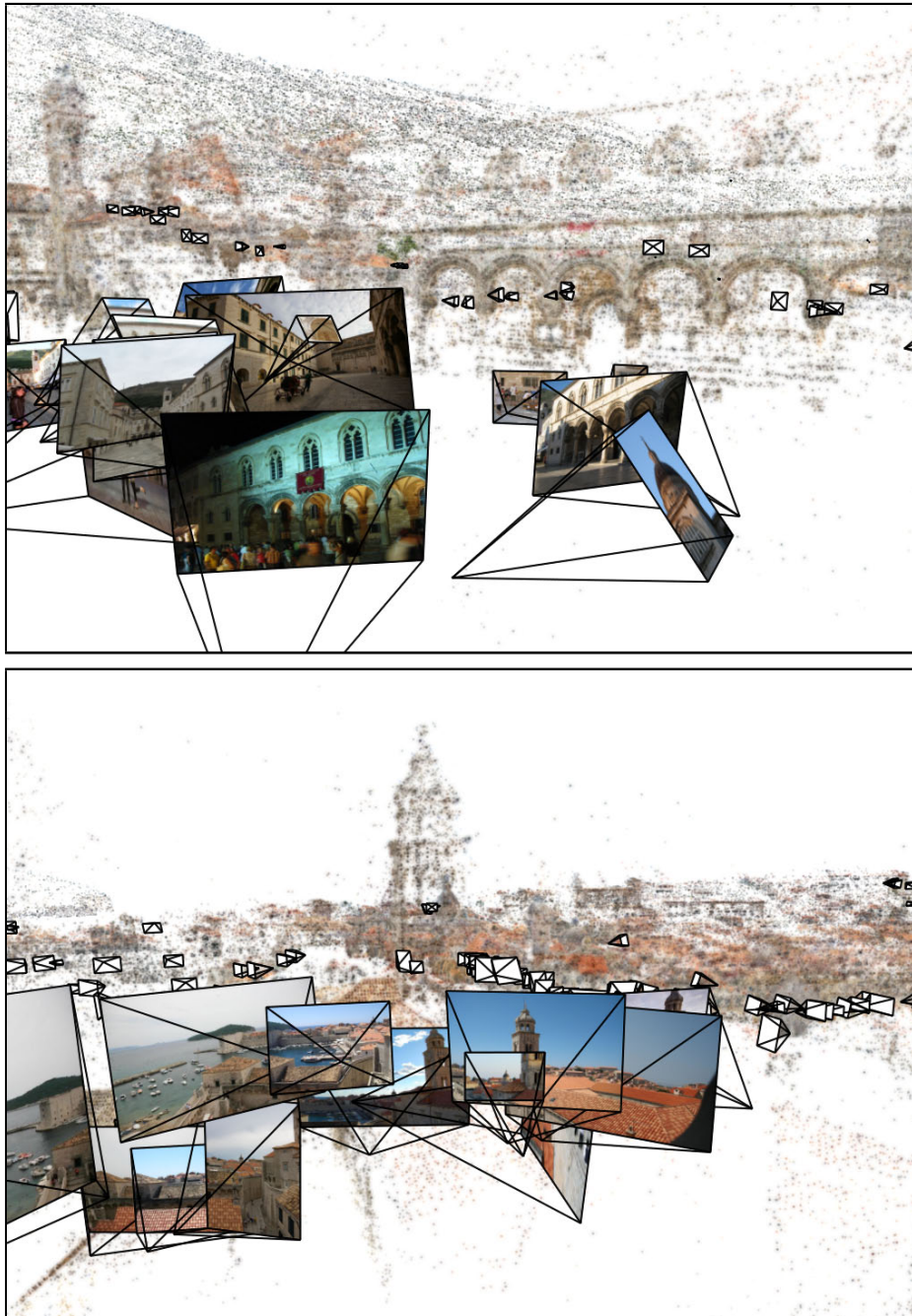
Fig. 5. Visualization of registration and localization on the Dubrovnik data set, showing the camera locations and their corresponding views (i.e. registered test images), as well as the 3D point cloud of the (full) model. Two more examples are shown in Figure 6.
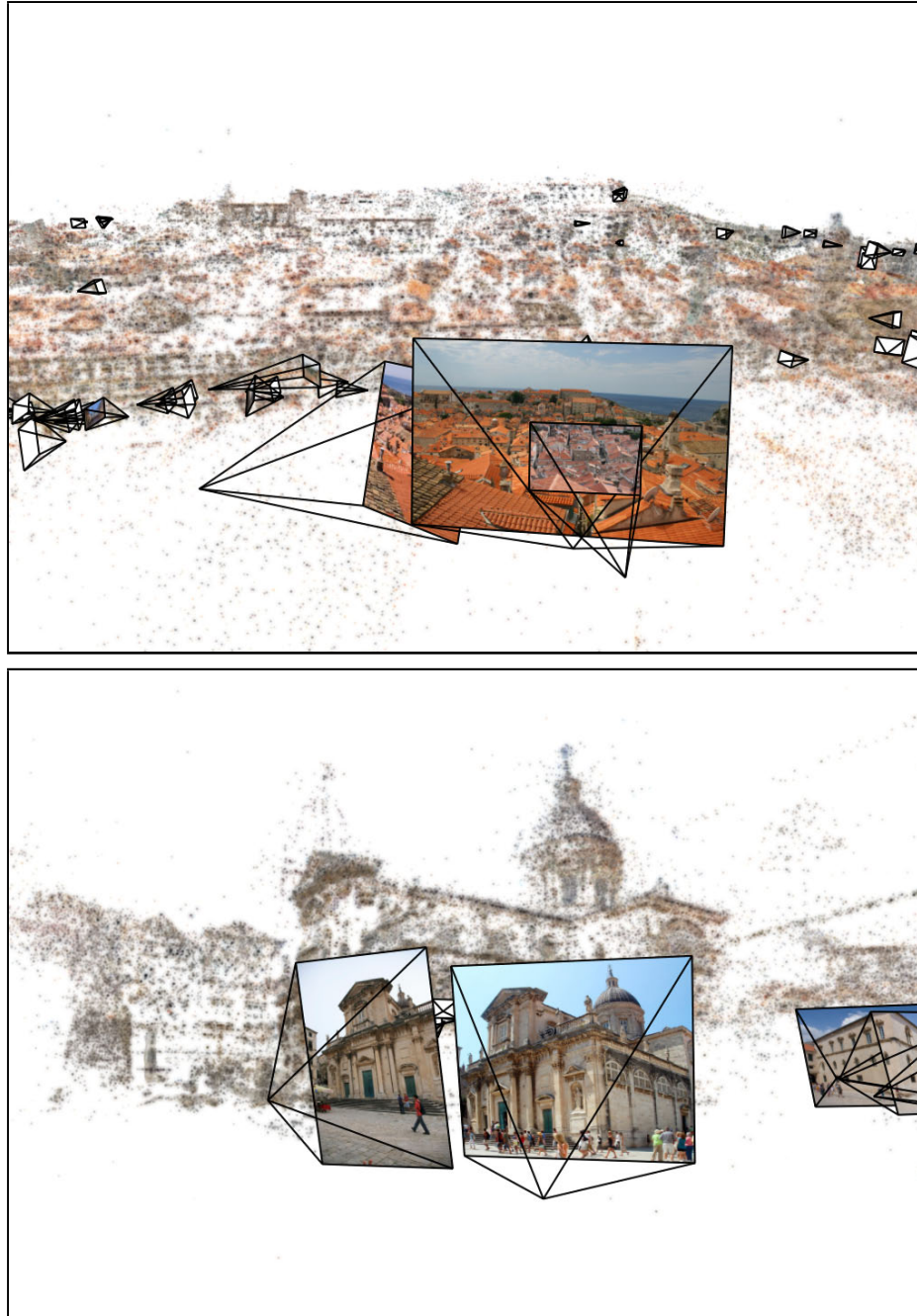
Fig. 6. Another two visualized examples of registration and localization.