Regularity-Driven Building Facade Matching between Aerial and Street Views (Supplemental Material)

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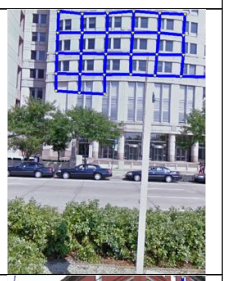
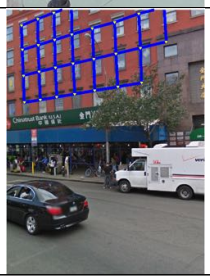
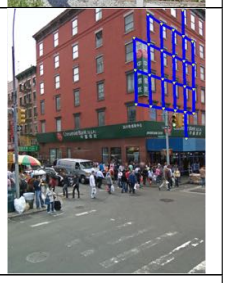
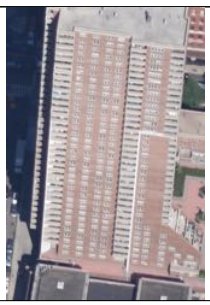
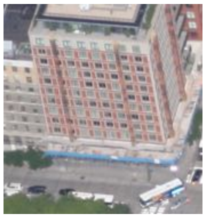
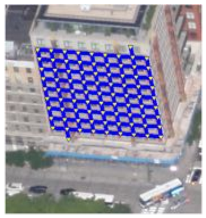
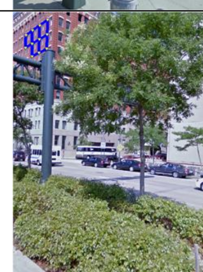
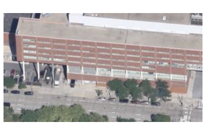
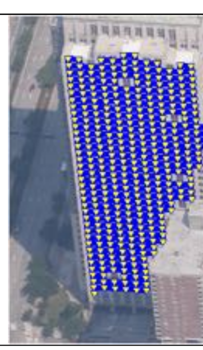
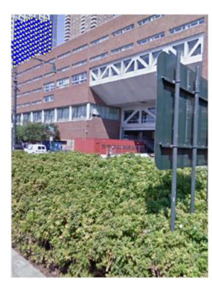
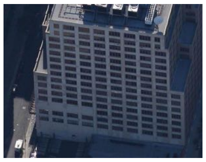
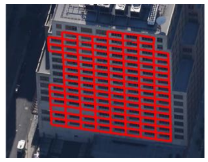
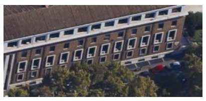
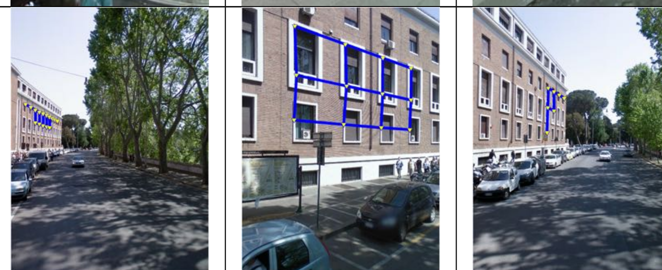
1. Sample Aerial View and Street View Matches from 3 Cities

Table 1 demonstrates 10 successful aerial-ground facade matching examples from NYC/Rome/SF, respectively. Specifically, we show interesting/difficult matches for facades which appear at significantly different viewing angles or lighting conditions.

Table 1: Facade Panel showing 30 sample facade match sets. We show 10 sets for **each** city in our test set.

City	Aerial	Aerial Lattice	Sample Street Matches		
NYC					
NYC					
NYC					

City	Aerial	Aerial Lattice	Sample Street Matches		
NYC					
NYC					
NYC					
NYC					
NYC					
NYC					

City	Aerial	Aerial Lattice	Sample Street Matches
NYC			
Rome			
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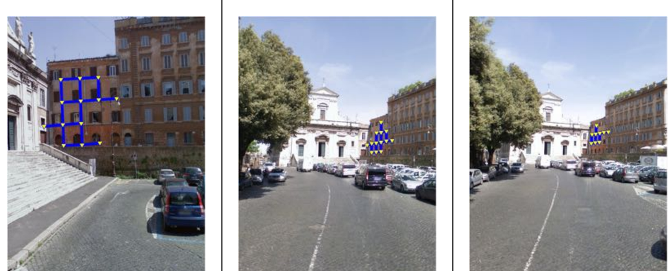
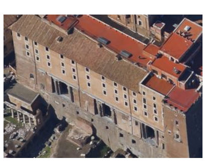
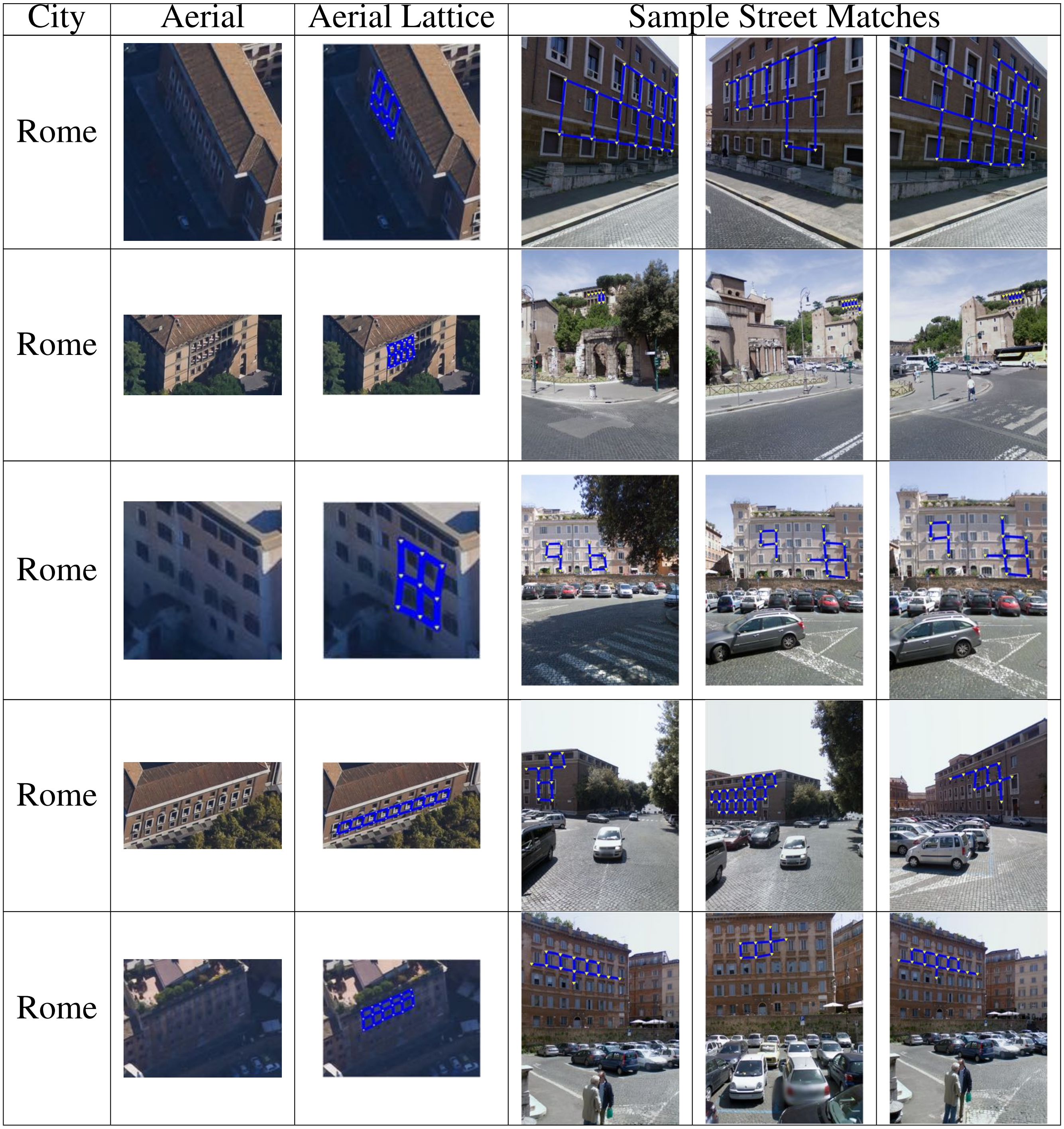
Rome			
Rome			
Rome			


City
Aerial
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Sample Street Matches
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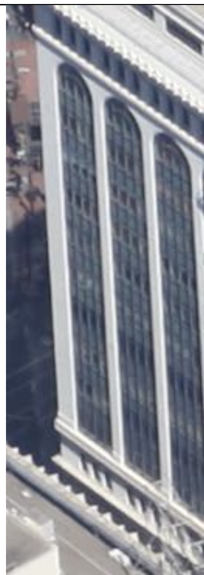
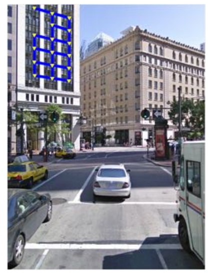
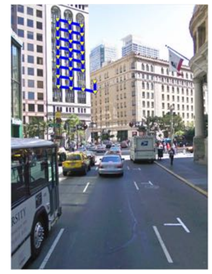
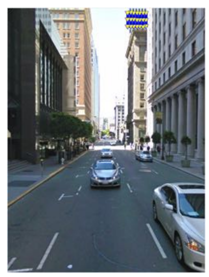
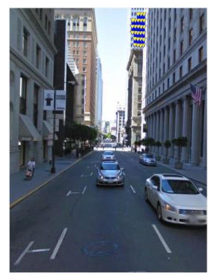
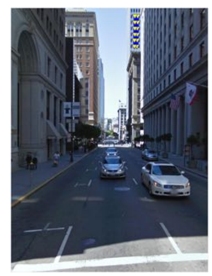
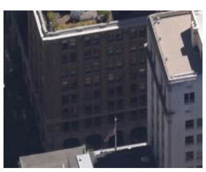
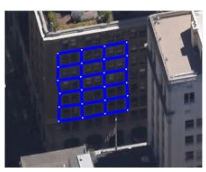
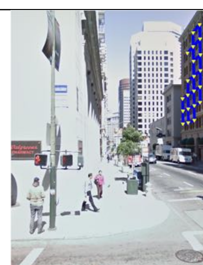
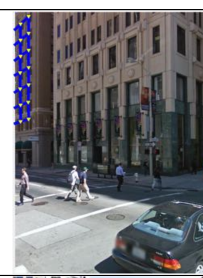
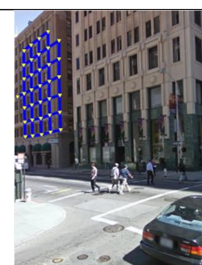
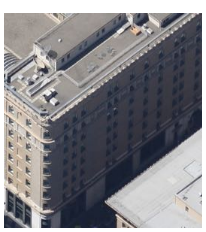
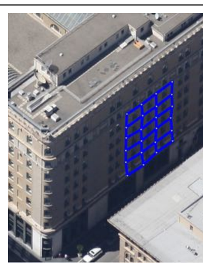
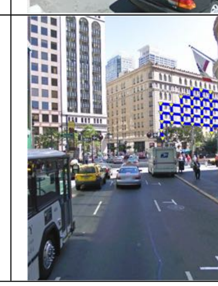
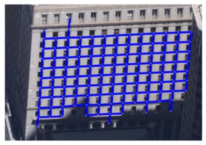
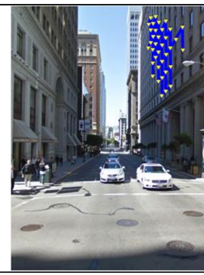
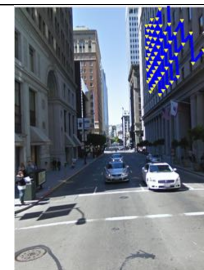
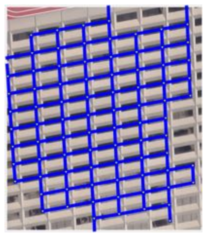
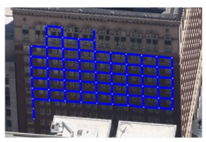
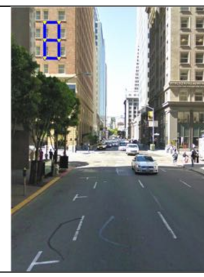
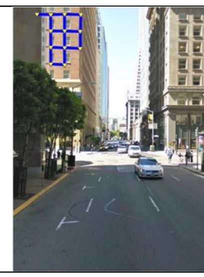
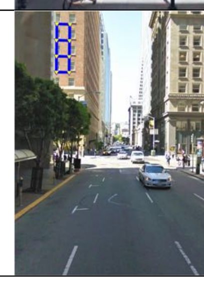
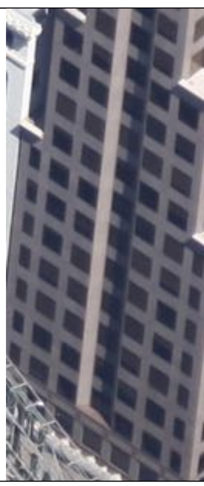
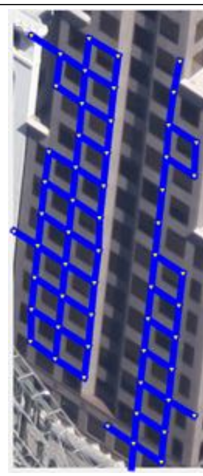
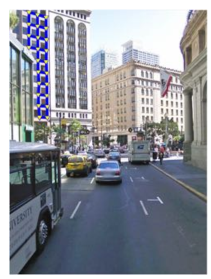
City	Aerial	Aerial Lattice	Sample Street Matches		
SF					
SF					
SF					
SF					

City	Aerial	Aerial Lattice	Sample Street Matches		
SF					
SF					
SF					
SF					

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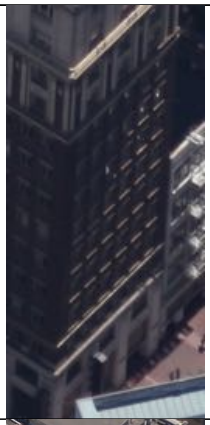
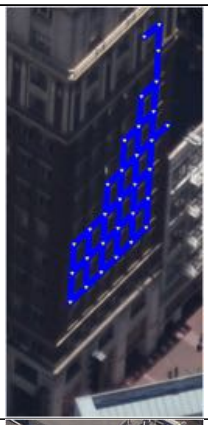
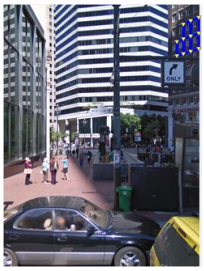
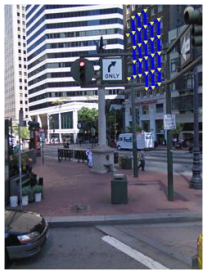
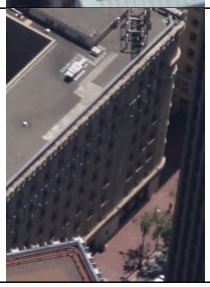
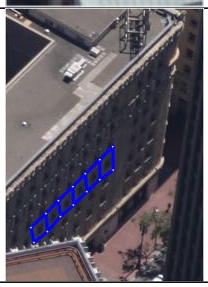
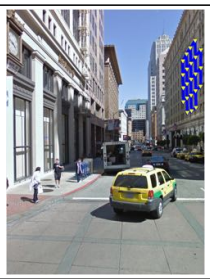
SF					
SF					

2. Additional Facade-Match Images

Figure 1 shows another example with different nearby, and potentially similar street-facades which are considered during the matching process.

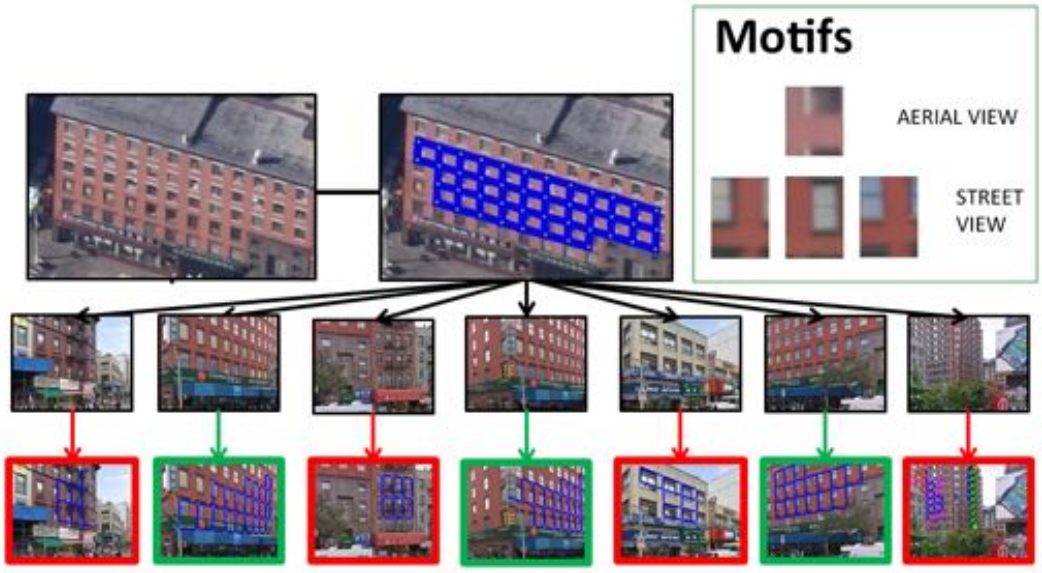


Figure 1. Sample images selected from positive/negative matching results as determined by our matching pipeline (green/red borders, respectively).

Figure 2. Minor and major occlusion removal is performed by replacing missing/obstructed lattice patches with available patches from another viewpoint.

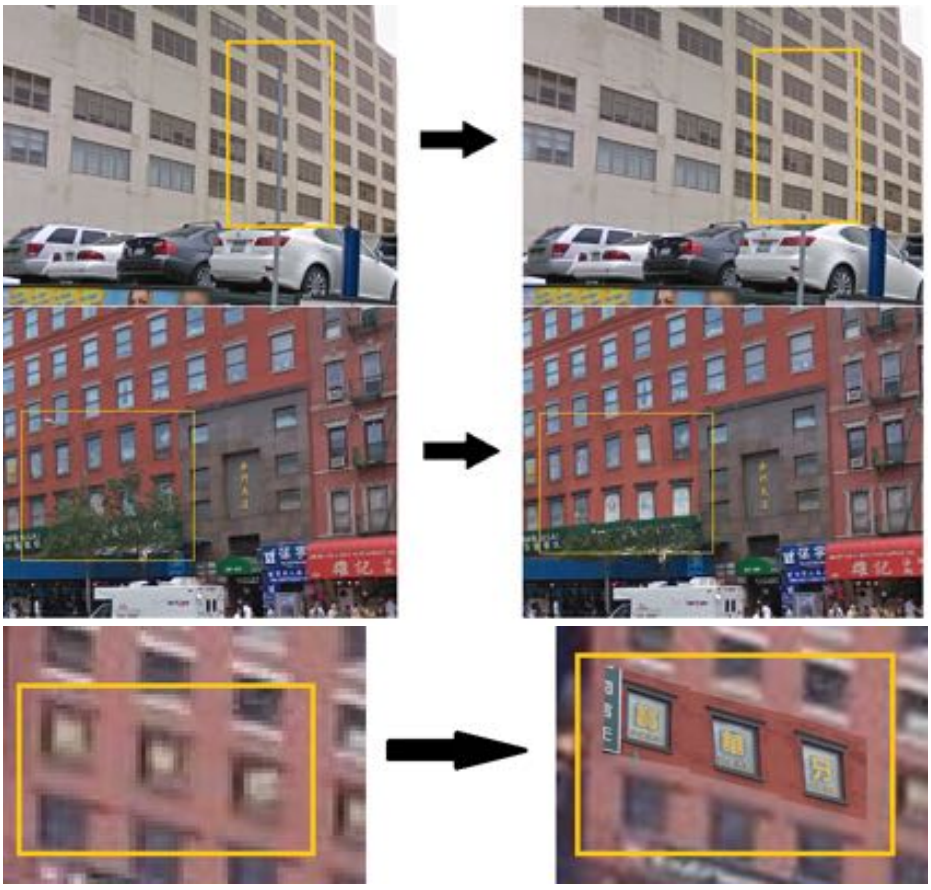


Figure 3. Removal of minor occlusions using texture replacement from a central lattice patch set

3. Street-Occlusion Removal and Aerial-Image Enhancement

Finally, we show additional application examples for aerial to street facade matching. With a set of street-level matches, multiple views are available, so occlusions can be removed by replacing lattice patches with its correspondence from another street-view, as shown in Figures 2 and 3.