1 Dataset Illustration

The images are crawled from Wikimedia. Here we summary the names, indexing pages and typical images for the 66-class architectural style dataset.

Table 1: Summarization of the architectural style dataset. Url stands for the indexing page on Wikimedia.

Name	Typical images
Achaemenid architecture	
American Foursquare architecture	
American craftsman style	
Ancient Egyptian architecture	
Art Deco architecture	
Art Nouveau architecture	
Baroque architecture	
Bauhaus architecture	

Name	Typical images
Beaux-Arts architecture	
Byzantine architecture	
Chicago school architecture	
Colonial architecture	
Deconstructivism	
Edwardian architecture	
Georgian architecture	
Gothic architecture	
Greek Revival architecture	
International style	
Novelty architecture	

Name	Typical images
Palladian architecture	
Postmodern architecture	
Queen Anne architecture	
Romanesque architecture	
Russian Revival architecture	
Tudor Revival architecture	

2 Task Description

1. 10-class dataset. The ten datasets used in the classification tasks are American craftsman style, Baroque architecture, Chicago school architecture, Colonial architecture, Georgian architecture, Gothic architecture, Greek Revival architecture, Queen Anne architecture, Romanesque architecture and Russian Revival architecture. These styles have lower intra-class variance and the images are mainly captured in frontal view.

2. 25-class dataset. Except for the ten datasets listed above, the other fifteen styles are Achaemenid architecture, American Foursquare architecture, Ancient Egyptian architecture, Art Deco architecture, Art Nouveau architecture, Bauhaus architecture, Beaux-Arts architecture, Byzantine architecture, Deconstructivism, Edwardian architecture, International style, Novelty achitecture, Palladian architecture, Postmodern architecture, Renaissance architecture, Tudor Revival architecture. There are various relationships

between the 25 classes, which make the classification task challenging.

3   Confusion Matrix

Here are the confusion matrices of the proposed algorithm on the 10- and 25-class classification task.
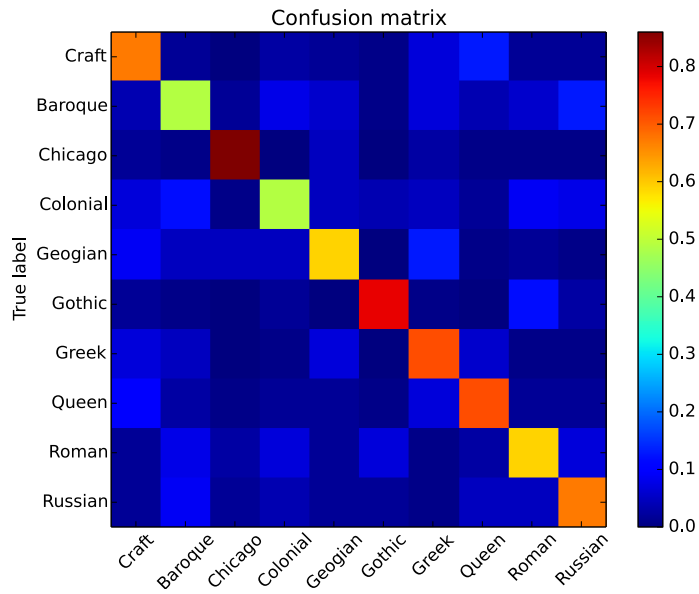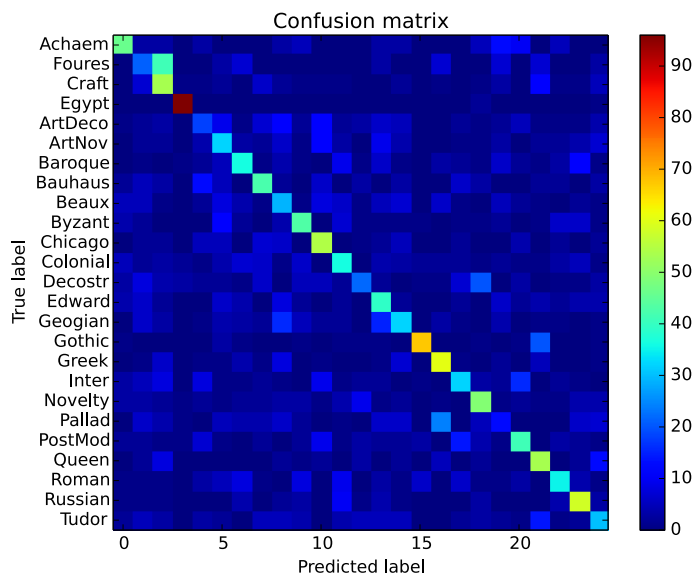

Figure 1: Confusion matrix for MLLR on the 10-class dataset.

Figure 2: Confusion matrix for MLLR on the 25-class dataset.