Model Card

Model Details

Person	Date	Version	Type	Links
Xiao Fei; Lihong Ji	19/10/2022	19	Final	Github

Algorithms

- Convolution filter
- Batch Normalization
- Relu
- Max /Average Pooling
- Residual / Skip connection
- Fully Connected Network
- Crossentropy
- Adam
- **Stochastic gradient descent**
- Softmax
- Global Average Pooling

Parameters

Batch Size	Epoch	Optimizer	Learning Rate
32	100	Adam	1e-5

Papers

[1] Kaiming He, et al. 2015. Deep residual learning for image recognition.

License

GPL: GNU General Public License

Factors

Relevant Factors

- Groups
  - Size
  - Texture
  - Material
  - Color
  - Content/ Subject
- Hardware
  - camera type
  - lens type
- Environmental
  - lighting
  - humidity

Evaluation Factors

There is no annotated factors for the MAMe datasets apart from their labels.

Metrics

Model performance measures

- Train Accuracy: Percentage of the correct prediction of training data per epoch
- Train Loss: Categorical Cross-entropy, the mean of {average cross-entropy of training data per batch} per epoch
- Train Accuracy: Percentage of the correct prediction of validation data per epoch
- Train Loss: Categorical Cross-entropy, the mean of {average cross-entropy of validation data per batch} per epoch

Decision thresholds

Currently set to 0. We plan to plot the accuracy of the model with test data depending on the decision thresholds.

Variation approaches

Kullback-Leibler divergence

Evaluation Data

Datasets

Museum Art Medium Dataset

- Low Resolution : 256x256x3, with 29 classes
  - Test: 15657 samples in total, not evenly distributed

Motivation

- To exam the performance (accuracy of correct classification of images) of the trained Convolutional Model
- Used to provide the comparable metrics to select to best trained model
- Plot the results and confusion matrix of model’s prediction

Preprocessing

- Divide the original dataset into train, val and test subsets according to subset info in the metadata
- Rescale the pixel range from [0-255] to [0-1]

Training Data

Datasets

Museum Art Medium Dataset

- Low Resolution : 256x256x3, with 29 classes
  - Train: 700 samples per class, 20300 in total
  - Validation: 50 samples per class, 1450 in total

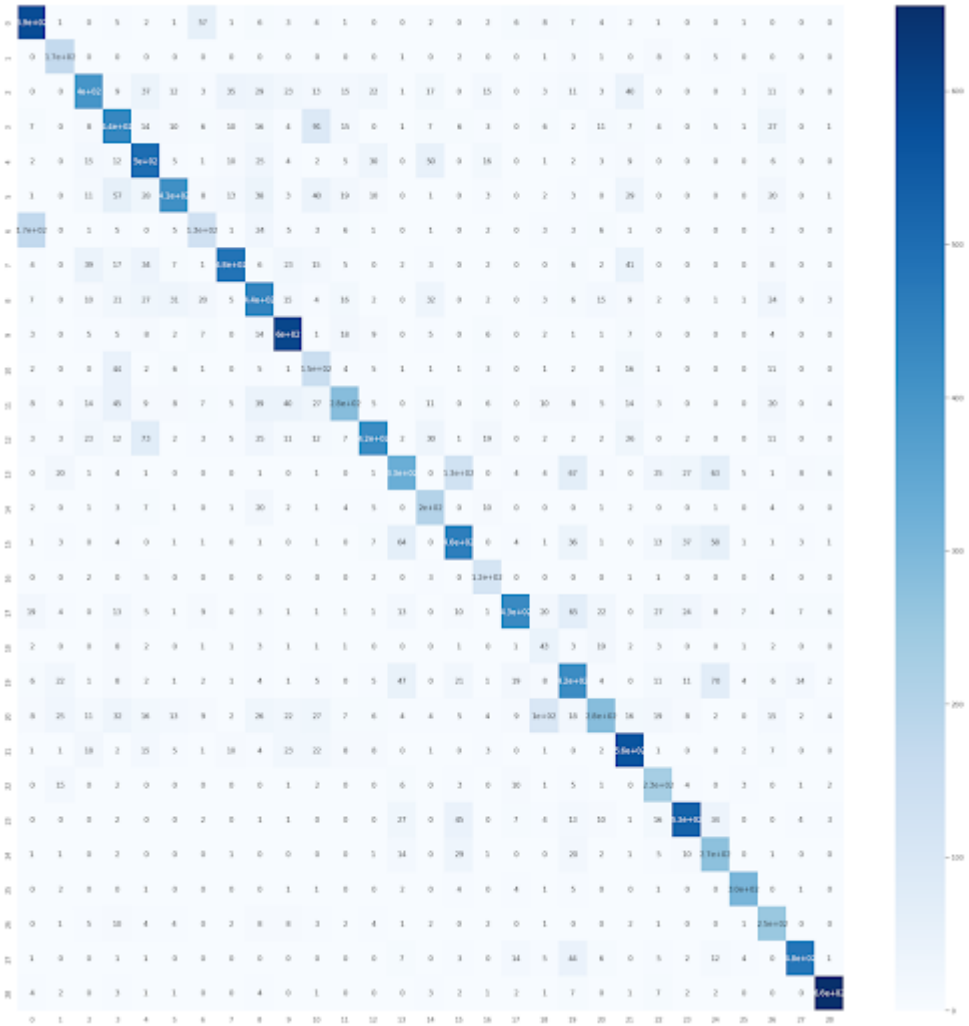
Motivation

- To build up the feature space of model

Preprocessing

- Divide the original dataset into train, val and test subsets according to subset info in the metadata
- Rescale the pixel range from [0-255] to [0-1]
- Shuffle the order of images in each subset
- Data Augmentation includes random flip and random rotation

Quantitative Analyses



Ethical Considerations

This model and datasets do not contain ethical issues or any harmful information.

This dataset is accessed from public resources and is used for research purpose.

Caveats and Recommendations

- It would be ideal to additionally include annotations for art material, size, camera details, and environment (lighting/humidity) details.